SCANNED

1

G. R. S. 58]

Previous references.

1915-16.
(Edn.)

File No. 20-15

Serial Nos. 15, 16 & 17.

Later references.

GENERAL AND REVENUE SECRETARIAT.

Serial Nos. 15 to 17.

Part B for January, 96.

SUBJECT.

Report from Foreign Government re: School and College Hygiene

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Serial 17. To No. 2.9. of Edn. no. 3377. of 18.1.96.

Forwards the above for information.

W D 1351—GPB—20,000—13-12-15

2.7.16

2/2

G. R. S. 11] 1915

GENERAL AND REVENUE SECRETARIAT.

(Edn)

NOTES.

File No. 20

FILE HEADING.

Reports from foreign Govts. etc.

From

The 1st Asst. to the Resident.

No. 9000 Dated 9.12.15 Received 19.12.15 / 8.1.16.

Diary No. 2123	Enclos. 30 Spare Copies. —	Serial No. 6

BRIEF ABSTRACT OF LETTER.

Forwards in continuation of his letter no. 3750 dt 27.5.15 copies of certain letters to ~~from~~ and ~~to~~ from the Govt. of India from the Govts. of (1) Bihar & Orissa and (2) the Punjab, and letters from the Govt. of India to the other two Govts. regarding School & College hygiene.

NOTES AND ORDERS.

The previous papers regd. to by the Residency have already been dealt with. The opinions of the Education committee and the Dy. of Edn. were obtained in the matter and the

NOTES—First Sheet.

GPB—20,000—3-2-14

General and Revenue Secretariat. | Ecor File No. 20 of 1915.

Serial No.

correspondence was recorded. (The file is submd. to the Asst. Secy. with a Press copy today).

~~Directed~~

8/1 Submd. for orders. The papers received from the Residency may be circulated to the Hon'ble Ecor. Committee for perusal & return to this office.

8/1/16

8/1/16 3 I submit for the Hon'ble Member's perusal. 8/1

8/1 4 The office file is put up for reference.

8/1 8/1 10.1.16 5 I submit there are 3 copies in the file. So one may be kept in the file for ref. & the other two copies may be sent 1 to the Ecor Committee, & 1 to the Ecor with the request that the copy may be sent to the Secretary for information & the press in the (Ecor) Office

Thanks 8/1

6 Submd. with two drafts. as the papers are voluminous; for information & approval

8/1 8/1 12.1.16. 13/1

8/1 15/1

The Press copy in the linked file will be issued after perusal in this connection

8/1 10.1.16 I do not think it necessary to issue the Press Note 11/1

Margin —

NOTE—Contn. sheet.

GPB—70,000—17.12.15

General and Revenue Secretariat. | File No. | of 191 .

Serial No.	
16.	To The Sec^{y}. Ec. Com. No. 3376. Dy 18.1.46. Forwards copies of the above communications for information and transfer of the same to the Sec^{y}. Edn. committee after perusal.
17.	To The Dy. of Edn. in Mysore. No. 3377. Dy 18.1.46. Forwards the above for information

NOTE—Contn. sheet.

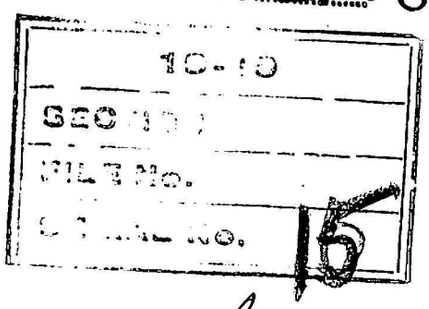
GPB—70,000—17-12-15

No. 9000
30.

FROM

P. B. WARBURTON, ESQ., I. C. S.,
FIRST ASSISTANT TO THE RESIDENT IN MYSORE.

DIARY No. 7123



To

The Dewan of Mysore.

Pol 1190 D/10.12.10.

Dated Bangalore, 9th December 1915

SIR,

In continuation of my letter No. 3750, dated the 27th May 1915, I am directed to forward herewith for information, a copy of the marginally noted papers regarding school and college hygiene.

* with two spare copies.

Letter from the Government of Bihar & Orissa No. 988 E, dated the 31st May 1915, with enclosure.
Letter from the Government of the Punjab No. 187 (Home Education) dated the 14th June 1915.
Letter to the Government of the Punjab, No. 1759-dated the 10th November 1915.
Letter to the Government of Bihar & Orissa No. 1819, dated the 17th November 1915, with enclosures.

I have the honour to be,

Sir,

Your most obedient servant,

P. B. Warburton

First Assistant Resident.

R. O. 2.—R. P. B.—10-1915.—1,000.

6

No. 988-E., dated Ranchi, the 31st May 1915.

From—The Hon'ble Mr. H. McPherson, I.C.S., Officiating Chief Secretary to the Government of Bihar and Orissa, Education Department,

To—The Secretary to the Government of India, Department of Education.

I am directed to refer to the correspondence resting with Mr. Sharp's letter no. 1143 (Education), dated the 24th June 1913, on the subject of paragraph 7 of the Resolution no. 301-C. D., recorded on the 21st February 1913, by the Government of India in the Department of Education, in which a thorough enquiry by a committee of experts into the question of school and college hygiene was suggested and the scope of such enquiry briefly indicated.

Chapter XII, paragraphs 4 to 8 and 14.
" XIII, " 23 to 27.
" XIV, " 5, 9, 12 and 15.
" XV, " 13 and 15.

2. The subject was dealt with so far as colleges are concerned, by the Patna University Committee, in their report, a copy of which has already been submitted to the Government of India. The local Government agree generally with the recommendations made by the Committee.

3. The question of school hygiene was referred to a committee, presided over by the Sanitary Commissioner, a copy of whose report is appended. The Lieutenant-Governor in Council is generally in agreement with the recommendations of the committee regarding type plans for schools and hostels, dimensions of rooms, sanitary conveniences, play-grounds, lighting, ventilation and furniture, and has already passed orders approving of the proposals made by them. The type plans for schools and hostels have now been prepared. The present communication deals with a few points which require special consideration.

4. *The introduction of a simple and more practical course of hygiene.*—The Committee deprecated the institution of hygiene as a separate subject of examination, but recommended that some instruction in the elimentary principles of hygiene should be given as part of the syllabus in nature study; that a short primer should be written containing simple rules for, and explanations of, the treatment of the more important diseases; and that the attention of Headmasters should be drawn to the great importance of keeping school buildings and their surroundings clean and tidy, in order that cleanly habits may be instilled into the pupils. The Lieutenant-Governor in Council accepts these suggestions, and arrangements are being made for the preparation of the proposed primer in consultation with the provincial centre of the St. John's Ambulance Association. It has also been settled that the Provincial Centre of the Association will arrange for lectures on hygiene to be delivered at the Patna Training College and the five first grade training schools. Hygiene is already taught at the medical schools at Bankipore and Cuttack; and, if possible, the lectures given at these institutions will be attended by students reading in the local training schools. The arrangements to be made for the other three training schools are still under the joint consideration of the Director of Public Instruction and the Inspector-General of Civil Hospitals.

5. *The inspection of male scholars with special reference to infectious diseases, eyesight, and malaria*—On this subject the Hygiene Committee have gone beyond the intentions of the Government of India in recommending the general medical treatment of school children and the appointment of medical advisers to all schools, whether managed or aided by Government. Financial considerations render these proposals impracticable, at least for some years to come. Efforts must at present be confined to the periodical medical inspection of school boys and school buildings in municipal areas; and the Lieutenant-Governor in Council considers that it should be made part of the duties of Municipal Health Officers, where these exist, to inspect, not only municipal schools, but also all Higher and Middle Schools in the Municipality. When such inspection reveals the existence of disease or sanitary defects, they should call attention to them and make suggestions for their correction. The Deputy Sanitary Commissioners and Civil Surgeons should also make periodical visits of inspection to schools and advise the authorities. The Director of Public Instruction has been asked to submit detailed proposals on these lines.

6. *Appointment of a Director of Physical Training.*—Under existing arrangements a few drill masters and gymnastic instructors are deputed annually from Bihar and Orissa to undergo a course of training under the Physical Director of the Young Men's Christian Association at Calcutta, and a contribution is made by the Local Government to cover the incidental expenses. The Hygiene Committee have deprecated the appointment of a Director of Physical Training on the ground that it is inadvisable to relieve Headmasters of the responsibility for seeing that the pupils in their schools undergo the requisite physical training. The Lieutenant-Governor in Council, however, does not consider that the appointment of an expert would in any way affect the responsibility of Headmasters, while it would undoubtedly greatly improve the efficacy of the training. He has accordingly asked the Director of Public Instruction to submit proposals for the appointment of such an officer, who will perform the duties of an Inspector of Schools in his own particular sphere. It will be his duty to see that physical training in the schools is conducted on proper lines and to advise the headmasters accordingly. In the meantime, the existing system of periodical deputations to the Young Men's Christian Association at Calcutta will be continued.

S. G. P. I., Delhi, -No. 566 D. of E.,-12-11-15—00.

PROCEEDINGS OF THE CONFERENCE APPOINTED IN GOVERNMENT LETTER No. 1014-E, DATED THE 26TH MAY 1913, TO CONSIDER THE QUESTION OF SCHOOL HYGIENE.

The Conference assembled at Bankipore on the 11th and 12th of August 1913, and there were present :—

(1) Lieutenant-Colonel E. C. HARE, I.M.S., Sanitary Commissioner for Bihar and Orissa ;
(2) Mr. V. H. JACKSON, Professor of Physics in the Patna College;
(3) Miss M. HONEYBURNE, Inspectress of Schools, Bihar and Orissa;
(4) Khan Sahib AMJAD ALI, late Headmaster of the Patna Collegiate School:
(5) Miss S. B. BANERJI, Assistant Inspectress of Schools, Orissa Division ;
(6) Major J. G. P. MURRAY, Civil Surgeon of Cuttack ;
(7) Mr. J. N. TURNBULL, M.B., F.R.C.S.E.
(8) Mr. D. N. SEN, Principal of the Bihar National College ;
(9) Maulvi ABDUL QAIYUM, Assistant Surgeon in charge of Educational Hostel and Messes at Bankipore ;
(10) Babu SRI RANG BIHARI LAL, M.A., Headmaster of the Sitamarhi High School ;
(11) Mr. G. E. FAWCUS, Officiating Director of Public Instruction.

The discussion was based on a note which the Sanitary Commissioner had circulated to all the members, dealing *seriatim* with the different points raised by the Government of India.

I.—The condition of School houses, hostels and other places where pupils reside, from the point of view of sanitation.

A.—School Houses.

(*i*) *Type Plans for Primary Schools.*—The type-plans for Board Primary Schools and Model Girls' Schools were considered and it was resolved that a 5 feet verandah is too narrow, because the pupils frequently walk on the verandah. It was therefore decided that if this can be done without very great expense, the verandah should be widened to 8 feet. Miss Banerji suggested that in girls schools a side verandah should be built on which the pupils could perform their physical exercises. She pointed out that girls will go into the open for this purpose.

(*ii*) *Type Plans for Secondary Schools.*—The Conference recommended that type plans should be prepared for High Schools, Middle English Schools and Middle Vernacular Schools, and that these type plans should form the basis of all projects towards the cost of which a grant is applied for.

(*iii*) *Demensions.*—With regard to the dimensions required in schools of different classes, the Conference was of the opinion that for secondary schools 10 to 12 square feet for each pupil and 100 to 122 cubic feet would be sufficient : for primary schools 8 to 10 square feet and 80 to 100 cubic feet.

(*iv*) *Lighting.*—The Conference was generally of the opinion that, as far as possible, school buildings should be made, to face north and south, but Mr. Sen urged that the direction of the prevailing wind should be the first consideration. They also considered that a verandah should be provided on the southern side but not on the northern, and that the addition of verandahs on the east and west, if possible, was desirable in secondary schools. All classrooms should be lighted from the north as far as possible, and their interior should be whitewashed.

(*v*) *Ventilation*.—The class-rooms should be in a single row and not more than 4 ft. of space should be left between the top of the windows and the roof; all windows should be made to open completely.

(*vi*) *Furniture*.—It was decided that three standard sizes of furniture should be prescribed suitable for pupils in the primary, middle and high school stages, respectively. The three types suggested are the following:—

—	For Primary Classes.	For Middle Classes.	For High School Classes.
1	2	3	4
	Inches.	Inches.	
Height of seat-board	12	15	18
Width of seat-board	8	9	10
Height from the top of the seat to the front edge of the desk.	8	10	12
Height from the floor to the back edge of the desk.	24	30	36
Distance between the edge of the desk and the seat.	3	3½	4
Width of the top of the desk (horizontal part)	4	4	4
Width of the top of the desk (inclined part)	11	12	13
Depth of the book-shelf	10	10	10
Distance of the book-shelf from the top of the desk.	5	5	5
Width of the seat and desk	18	21	24

Plans should be prepared to show the exact meaning of these measurements. The pupils should be able to lean slightly back when reading and both the seat and the inclined portion of the desk should be made to fold back. The inclined portion of the desk when folded back may be utilised as a book-rest. The conference was unanimously of the opinion that desks should be provided for all classes of secondary schools and in primary school where possible. The black-board should be on a side of the room where there are no windows.

(*vii*) *Tiffin-rooms*.—Some discussion took place as to what was meant by a tiffin-room and it became clear that it was unnecessary to provide any rooms where boys could actually eat their midday meal. It was, however, decided to be necessary that separate rooms for Hindus and for Muhammadans should be built at each school in which water could be kept, together with any food that the boys or girls might happen to bring with them for their midday meal, though it was pointed out that food is seldom brought in this way. The floor of these water-rooms should be pucca. For primary schools it was considered that it would be unnecessary to build separate water-rooms and that a small portion of the verandah might be enclosed to serve the purpose.

(*viii*) *Wells*.—There should be a separate pucca well for each school with more than 100 pupils irrespective of its status. The well should be at least 4 feet in diameter and should be provided with a well-top of the pattern approved by the Sanitary Board.

(*ix*) *Sanitary Conveniences*.—It was resolved that 4 per cent. of urinals and 2 per cent. of latrines should be provided for each day school and that

over and above these a separate latrine and urinal should be provided for the teachers. For schools in rural areas no such provision is necessary.

B.—Hostels.

(*i*) *Type-plans.*—Type-plans for hostels are being prepared. The Conference was of the opinion that 40 sqare feet of floor space was enough for each pupil in large dormitories; but that for hostels the standard of 60 square feet should be maintained.

(*ii*) *Lighting and Ventilation.*—As for school buildings.

(*iii*) *Furniture.*—Each pupil should be provided with a wooden bed, a table, a chair, a book-self and a set of clothes pegs. He should be required to provide himself with a mosquito net. Good lamps should be provided, either one for each boy or a large lamp to light the whole room.

(*iv*) *Outhouses.*—The Conference considered it necessary to provide separate kitchens for each of the messes into which the boys living in a hostel would break up. The dining-room provided in the type-plan will probably not be required except for Bengali boys. In other cases it can be used as a living room.

(*v*) *Water-supply.*—Wherever a competent mistri is available all wells should be sealed over with a cover which cannot be opened except for repairs and a strong pump should be provided with which to lift up the water into an overhead cistern from which it can be delivered by a pipe-line to the cook-house, to the bathing platform, to the Superintendent's quarters and wherever else it may be required. At the bathing platform, wherever the supply of water and arrangements for drainage permit of this being done, a long covered cistern should be provided with taps for 10 per cent. of the boys and capable of holding a maximum of 4 gallons per head of water for bathing and washing. Bathing platforms intended for Muhammadan boys should be covered over.

(*vi*) *Sanitary Conveniences.*—These should be provided for hostels on the scale of at least 3 per cent. of urinals and 8 per cent. of latrines. They must be placed as far away as possible from the cook-house and dining-rooms, and a covered receptacle in which to store the night-soil during the day time must also be provided. Small dust-bins are also required to hold the sweepings of the school rooms and the kitchen refuse.

(*vii*) *Drainage.*—Masonry drains should always be provided to carry off the waste water from the bathing platform, the cook-house, and the dining-rooms and they should be connected up either with the Municipal masonry drain or with a large covered cess-pit, without any masonry bottom, which can be cleaned out from time to time.

(*viii*) *Ward Servants.*—It was decided that one ward servant should be provided for each 50 boarders.

(*ix*) *Infirmary.*—All hostels should be provided with a separate sick-room in a separate block at some distance away from the main block, and where possible this infirmary should be separated from the main block by a wall or fence and should be provided with a separate cook-room, well and privy. The accommodation should be for 8 per cent. of the pupils living in the hostel. The room should be divided up into units of 240 square feet and the furniture provided should consist of an iron bed, a low combined bedside table and locker for each inmate and one chair for each room. A separate ward servant should be provided for the sick-room.

2. *The professional examination of building plans from the hygienic point of view.*

The present arrangements were accepted as satisfactory. It is the practice that no grant is given by Government for any new building or for the extension of, or for alterations to, existing buildings to the value of more than ₹500 unless the plans have been approved by the Director of Public Instruction and by the Sanitary Commissioner. For petty works costing not more than ₹500 the approval of the Divisional Inspector and of the District Civil Surgeon is accepted.

3. *The introduction of a simple and more practical course of hygiene; whether it should be a compulsory subject in the various schemes of school leaving certificates, and whether it should be recommended to Universities as part of their Matriculation Examination.*

The Conference viewed with some amusement the present syllabus in hygiene and considered that it was obvious at first sight that it was far too elaborate and technical. They were of the opinion that hygiene should not be made a separate subject of examination in schools; but that some instruction in the elementary principles of hygiene should be given as part of the syllabus in nature-study. A very short book should be written, containing some rules in connection with the more important diseases and very simple explanations should be given of the reasons for these rules. The book should not contain more than 20 pages. The Conference recommended that the attention of Headmasters should be drawn to the great importance of keeping school buildings and their surroundings absolutely clean and tidy, and considered that this was one of the best methods of inculcating the supreme importance of cleanliness in the boys' homes.

4. *The inspection, where possible, of male scholars with special reference to infectious diseases, eye-sight and malaria.*

The staff required.—While deprecating any additions to the present inspecting staff, the Conference was of the opinion that a medical officer of a status not lower than that of a Sub-Assistant Surgeon should be provided for all Indian schools wherever arrangements can be made with the present medical staff. The medical officer should attend the school at least once a week and should see and treat all cases sent to him by the class teachers at any time. He should at once inform the Headmaster of any case of infectious disease. In towns with a population of more than 50,000 it was decided that a special Medical Officer of the rank of an Assistant Surgeon should be appointed.

Where a medical officer has been appointed, a small supply of bandages and of the drugs in most common use should be kept for his use, in a locked almirah at all schools with more than 100 pupils and a sick register should be maintained.

The medical officer should once a month examine the sanitary condition of the school premises and should make a written report to the Headmaster in a book to be kept specially for the purpose. The special medical officer to be appointed for towns with more than 5,000 inhabitants should once a year thoroughly examine the condition of each pupil and should keep detailed records of their height, weight, chest-girth and physical condition.

Where there is a hostel the medical officer should, as far as possible, attend daily at an hour fixed for each school and at such other times as may be necessary in urgent cases.

The four European boarding schools should be under the personal supervision of the Civil Surgeon of the district and the European day schools should be under the Medical Officers of the Railways.

(*ii*) *Fees.*—A capitation fee of eight annas a year for each pupil should be paid to the medical officer in all Indian day schools. In secondary schools this sum will be paid by the pupils themselves, but in primary schools it will be necessary for Government to meet the cost.

For hostels the medical officer should draw an allowance according to the scale sanctioned in letter no. 937, dated the 25th of July 1902, from the Government of India. This allowance should be over and above any capitation grant which he may receive for attendance on day scholars. The cost of the simple medicines alluded to above should be also met by Government. More expensive medicines can either be purchased privately or obtained from local dispensaries as at present.

For the European Boarding Schools a fixed monthly allowance of R50 for each school should be given to the Civil Surgeon, and where the number of pupils exceeds 200 an additional allowance at the rate of R25 for each additional 100 pupils should be given. The cost of this allowance will have to be met by Government.

Where Lady Doctors are available, similar arrangements should be made at schools for Indian girls. The Lady Doctors should be allowed an annual capitation allowance of Re. 1 in view of the smaller number of pupils involved, and the cost should be made by Government.

(*iii*) *Sanitary Precautions.*—The special precautions to be adopted for the management and treatment of infectious diseases, such as small-pox, cholera, measles, chicken-pox, mumps, enteric, etc., will depend on the advice given by the medical officer in each particular case. In areas where vaccination is compulsory the medical officer should draw the attention of the Civil Surgeon to any cases where pupils have not been vaccinated.

As regards malaria, the Conference agreed that Inspecting Officers and medical officers of schools should be instructed to inculcate the advantages of giving prophylactic doses of quinine to each pupil on two consecutive days in each week from July to December.

(*iv*) *Defective sight and diseases of the eye.*—With regard to the prevention and treatment of defective eye-sight and diseases of the eye the Conference was of the opinion that no practical suggestions could be made at the present time owing to the absence of qualified specialists, but as these matter are of very great importance to the welfare of the pupils they considered that much more attention should be paid to preventive measures, such as the prescription of well-printed books with large, clear and well-spaced type ; the discouragement of books printed on glazed paper , the proper lighting of school-rooms and hostels, and the discouraging of the practice of reading late at night. In all hostels the time for "lights out" should not be later than 10 P.M.

5. *The length of the school day, home studies, and the effect upon health of the present system of working for formal examinations.*

(*i*) *In Primary Schools.*—Here the Conference agreed that the hours are so indefinite that it is impossible to lay down any fixed scale. It was, however, resolved that for the infant classes the school day should not exceed four hours, that for primary schools it should not exceed five hours and that the maximum length of a period should not exceed three quarters of an hour. The limits mentioned should include two intervals of between 15 and 20 minutes for relaxation.

(*ii*) *For Secondary Schools.*—It was decided that the maixmum length of the school day should be 5½ hours inclusive of one interval of half an hour for relaxation. In addition to this the compulsory period of study in a hostel should be limited to four hours and the home work of boys not living in hostels should as far as possible be regulated in the same way.

(*iii*) *Examinations.*—In considering the effect of examinations on the health of the pupils it was recognised that formal examinations are to some extent a necessary evil, but it was suggested that much might be done to distribute the strain of working for them if it were laid down that in all school examinations for promotion at least 50 per cent. of the marks allotted to each subject should be assigned to the work done during the school term. The Conference feared that it would not be possible to follow this system in examinations on the result of which scholarships are awarded or in the Matriculation Examination of the University.

6. *The requirements in the way of recreation grounds, gardens, gymnasia, reading rooms, common rooms, etc.*

(*i*) *Play-grounds.*—It was decided that one football ground of a size of at least 100 yards by 60 yards for each 100 boys should be considered the minimum in all schools in which European games are played. In primary schools and girls' schools it will be sufficient to provide a small space for native games, and, where the space available is very limited, each class should make use of it in turn. The play-grounds attached to girls' schools should be surrounded by high walls.

(*ii*) *Gardens.*—The Conference considered that gardens were primarily intended for use in connection with nature study and, though they undoubtedly

provide occasions of physical exercise, it seemed scarcely necessary to allude to them in dealing with the question of the school hygiene.

(*iii*) *Physical Exercise.*—Organised physical exercise in some form or other is so essential to health and discipline that the Conference was strongly of the opinion that it should be made compulsory in all boys' schools. It was also decided that at least one hour a week should be devoted to drill under the supervision of a qualified master and that the time should be broken up into two or three shorter periods. Drill should be encouraged in girls' schools, but should not be made compulsory in them.

(*iv*) *Gymnasia.*—An endeavour should be made to provide all Government High Schools and, if possible, all Aided High Schools with gymnasia. Exercise in the gymnasium should be one of the approval forms of physical exercise but it should not be made alternative with drill as its disciplinary value is considerably less. The Conference noted that type-plans for gymnasia were being prepared.

(*v*) *Reading Rooms and Common Rooms.*—The Conference suggested that the school hall should always be open to pupils for use as a reading room or common room between the close of the school day and 7 P. M., and that a supply of light literature suitable for boys should be provided. Those high schools which have no halls at the present time should be instructed to take early steps to provide them.

The conference next proceeded to discuss the letter from the Government of India, No. 1143, dated the 24th June 1913, with special reference to the suggestions—

(*a*) that the St. John Ambulance Association might render aid in connection with the teaching of hygiene, and

(*b*) that a Physical Instructor should be appointed on terms similar to those on which Dr. Gray is engaged in Bengal.

With regard to the former point the Conference suggested that the Civil Surgeon, who is the local representative of the Association in each district, might be asked to deliver occasional lectures to the two highest classes of high schools, but they did not consider that anything further was practicable. In this connection it was also suggested that the two peripatetic lecturers recently appointed to deliver lectures on the best means for combating malaria might be asked to deliver their lectures also at all the first-grade Training Schools.

With regard to the second point, the Conference was of the opinion that it is the duty of all Headmasters to see that all the pupils in their schools take the required amount of physical exercise, and they deprecated any system which would place part of the responsibility on other shoulders. The training of drill and gymnastic masters is of course a matter of importance; but it was noted that arrangements for this are already being made.

S. G. P. I., Delhi,—No. 506 D. of E.—11-12-15—GK

No. 187 (Home—Edn.), dated the 14th June 1915.

From—The Hon'ble Mr. J. C. GODLEY, M.A., C.S.I., Under-Secretary to the Government of the Punjab, Home (Education) Department,

To—The Secretary to the Government of India, Department of Education.

I am directed to reply to Mr. Sharp's letter no. 1141, dated the 24th June 1913, on the subject of the enquiry into questions relating to school and college hygiene which was recommended in the Government of India, Department of Education, Resolution no. 301-C. D., dated the 21st February 1913.

2. It was suggested in the resolution that a small committee of medical and educational experts should be appointed in each province to consider a number of questions, of which a list was appended, bearing on the health of school pupils. Most of these questions, I am to say, had already been discussed at educational conferences held in the province, and action had been taken on their recommendations. It appeared unlikely in the circumstances that a new committee could be constituted so as to deal adequately with all the subjects enumerated in the resolution, which cover a wide field and required previous investigation and experience. It was decided, therefore, to refer the main questions of school hygiene in their general aspect to the provincial Sanitary Conference which was to meet in August 1913, leaving it to the Conference to define, if necessary, the scope of such special enquires as might afterwards be deemed advisable.

3. *School buildings.*—Among the questions of which a list was given in paragraph 7 of the resolution, the preparation of suitable type designs for school buildings received careful attention several years ago, and designs were drawn out by the Public Works Department in consultation with officers of the Department of Education, embodying the accepted principles of school planning as adapted to the conditions of the province. These designs have proved of great assistance to school managers, and have been followed in the case of new Government High School buildings which have been already erected or are in course of erection. The sites usually chosen for new school buildings are open spaces outside the towns where there is room for hostels and playgrounds, and the opinion of the local medical officers is obtained as to their sanitary character. Plans for primary school buildings vary according to the requirements of the different parts of the province, but are based on general hygiene principles. The tendency towards overcrowding in secondary schools was discussed at some length in the Sanitary Conference, and a resolution was passed in favour of pressure being brought to bear on school managers to conform, as far as possible, to departmental regulations in this respect. The Lieutenant-Governor in the course of his tours during the last two years has seen a great number of the new buildings for secondary schools—Government, Board and Aided—either erected or in course of erection, and he has been much impressed by the remarkable improvement in their standard, whether as regards design, accommodation or surroundings. The standard set by Government in its high schools is being closely followed, and even exceeded in the case of some aided institutions.

4. *Teaching of hygiene.*—The teaching of the principles of hygiene and sanitation in schools was also discussed in the Conference. The text-books formerly prescribed for the lower classes of schools, which were summaries, containing simple rules for the preservation of health, made little, if any, appeal to the pupils' imagination, and were regarded chiefly as aids to passing examinations. These have now been replaced by a book entitled "Life Light, and Cleanliness," written by Major Perry, I.M.S., at the request of the Text-Book Committee, in which an attempt is made to impress the principles of sanitation on the pupils' minds in the form of a history. The Punjab Sanitary Conference passed two resolutions on this subject:—(*a*) that where hygiene was already taught the course should be more practical, and (*b*) that hygiene should be a separate compulsory subject in all training institutions, and that the course should be such as to qualify the teachers to carry out the foregoing resolution. Excluding a few high schools in which physiology and hygiene are taken up as a separate subject by candidates for the University Matriculation, lessons in the principles of sanitation are only given in

the lower classes, and by teachers who have received no special training for the purpose. The first resolution, therefore, cannot be given effect to unless the second is found to be practicable, and this is as yet uncertain. As a beginning, arrangements have been made for courses of lectures on hygiene to be delivered in training institutions by local medical officers wherever this is possible.

5. *Medical inspection of scholars.*—The question of instituting a systematic medical inspection of college students and school pupils has been engaging attention in this province for several years, and many local inspections have from time to time been carried out. Particulars regarding some of them were given in the reports on education in the province for the years 1911-12 and 1912-13. The managers of secondary schools would welcome the institution of medical inspection organised by the State, but there has been some doubt as to the particular agency which could be most effectively employed. The Sanitary Conference passed a resolution that the existing Provincial Medical Department should be utilised as far as possible. But it was recognised that the employment of whole-time inspectors would in any case be necessary, and Government has decided to appoint, in the first instance, six Assistant Surgeons, two for the Lahore and one for each of the remaining four divisions, for this particular duty, who will begin by inspecting secondary schools situated in the larger centres. The arrangement is experimental, and its success will depend on the zeal and competence of the medical officers employed, the extent to which parents can be induced to co-operate, and the possibility of ensuring that inspection is supplemented by treatment where necessary.

6. *Length of the school day, etc.*—Questions relating to the curricula of studies in schools were considered to be outside the scope of the Sanitary Conference, and did not figure in their agenda. The shortening and simplifying of curricula had, however, previously been fully considered in successive educational conferences, the outcome being the revised time-tables and schemes of studies given in the latest editions of the Punjab Education Code, which do not impose an excessive strain on the pupil, and are so arranged as to graduate the length of the school day throughout the junior classes, and to provide sufficient breaks of study. Instructions regulating home tasks have been issued by the Department of Education. The chief obstacles met with in this connection are that many parents imagine that their children are being neglected if they are not kept all day at school, and that teachers of an inferior type find it easier to set long home tasks and to insiss on the memorising of text-books, than to improve their methods of teaching.

7. *Playgrounds, etc.*—With the aid of the liberal grants sanctioned in recent years by the Government of India for capital expenditure on educational objects, open sites outside the towns have been acquired in many cases for new high school buildings, with playing-fields attached. In the case of schools situated within the towns playing-fields within easy reach can only be obtained at a cost which is often prohibitive, and indefinitely large sums could be spent on this object alone. Assistance is given, so far as funds are available, to all schemes of this nature designed to promote the physical and social welfare of the student populations, provided that the expenditure proposed is on a moderate scale; and there has been a very noticable improvement recently. Where the difficulty or cost of acquiring land for play-grounds is a bar, it has often been found possible to provide facilities by putting portions of encamping-grounds, police parade grounds, or other Government sites, at the disposal of the schools for their games.

8. *Inspecting agency, etc.*—Arrangements have been made, as in other provinces, to obtain the aid of a director of physical training from the Young Mens' Christian Association. In view of the strengthening of the superior inspecting staff in this province which has already received the sanction of Government, the Lieutenant-Governor does not think that any special addition of staff is needed for the purposes of school hygiene, etc., with the exception of the appointment of the medical inspectors referred to in paragraph 5 of this letter. For First Aid classes in schools the co-operation and assistance of the St. John's Ambulance Association, which has recently been reorganised in the Punjab, will be relied on.

G. P. I., Delhi,—No. 506b D. of E.—11-11-15—00.

No. 1759 Dated the 10th November 1915.

From—The Hon'ble Mr. H. SHARP, C.I.E., Officiating Secretary to the Government of India, Department of Education,

To—The Under Secretary to the Government of the Punjab, Home (Education) Department.

I am directed to refer to the Hon'ble Mr. Godley's letter no. 187-(Home-Edn.), dated the 14th June 1915, regarding the measures taken in the Punjab for the promotion of school and college hygiene.

2. It is observed from paragraph 5 of your letter that the local Government has decided to appoint six Assistant Surgeons for the medical inspection of children in secondary schools. The Government of India desire to point out that for some years to come any such inspecting agency will be engaged in the preliminary investigation of the existing conditions of health in schools and it will be necessary for each province to obtain actual records of such conditions before any concerted measures of improvement are determined. In these circumstances it seems essential that the work of inspection should be carried out on a uniform principle and the results correlated by a thoroughly skilled officer, such as some provinces already possess. But in view of the difficulties created by the present financial conditions the Government of India are unable to suggest the immediate creation of such an appointment. And for the same reason they feel constrained to request that, with the permission of His Honour the Lieutenant-Governor the appointment of the six Assistant Surgeons referred to above should be postponed until the present financial situation is improved.

S. G. P. I., Delhi.—No. 506c D. of E.—11-11-15.

No. 1819 Dated the 17th November 1915.

From—The Hon'ble Mr. H. SHARP, C.I.E., Officiating Secretary to the Government of India, Department of Education,

To—The Chief Secretary to the Government of Bihar and Orissa, Education Department.

I am directed to refer to your letter no. 988-E., dated the 31st May 1915, describing the steps which have been taken for the promotion of school hygiene in Bihar and Orissa.

2. In paragraph 5 it is stated that financial considerations at present preclude the appointment of a special inspecting staff for the medical examination of male scholars, and that in the circumstances efforts must for the time being be confined to the periodical medical inspection of school boys and school buildings in municipal ares. The Government of India appreciate the difficulties created by the present financial conditions. At the same time they wish to emphasize the importance of uniformity in inspection of the conditions of Health in schools and the correlation of the results obtained. For this purpose it seems necessary to employ some regular inspecting staff, and the Government of India therefore hope that when the financial position improves it will be possible to do something towards this end.

3. The Government of India observe that instructions have been issued for the preparation of a short primer on elementary hygiene. As some difficulty seems to have been experienced in making a selection from among existing books, I am to enclose for the information of the Lieutenant-Governor in Council a copy of the report of the Sub-Committee appointed in Bengal some time ago to examine the question of text books on hygiene.

S. G. P. I., Delhi—No. 508d D, of E.—12-11-15.—

No. 4410, dated Calcutta, the 21st April 1914.

From—Major W. W. Clemesha, M.D., D.P.H., I.M.S., President of the Hygiene Sub-Committee,

To—The Director of Public Instruction, Bengal.

With reference to the resolution contained in paragraph 5 of the Proceedings of the first meeting of the Special Committee convened under Government Order no. 1972-T. G., dated the 22nd September 1913, to inquire into school and college hygiene, I have the honour to submit a copy of the report of the Sub-Committee appointed thereunder to consider the whole question of the instruction in sanitation and hygiene in schools with special reference to the present syllabuses.

REPORT OF THE HYGIENE SUB-COMMITTEE.

At the first meeting of the Special Committee appointed by the Government of Bengal (General Department no. 1972-T. G., dated the 22nd September 1913) to inquire into school and college hygiene, it was resolved to refer the whole question of the instruction in sanitation and hygiene with special reference to the present syllabus to a Sub-Committee whose business it should be to submit to the Committee definite recommendations about this instruction in general and the present syllabuses in particular. The Sub-Committee commenced work shortly after their appointment and held six formal and two informal meetings. Major W. W. Clemesha, I.M.S., Sanitary Commissioner, Bengal, was appointed as Chairman, and Mr. H. A. Stark, Officiating Inspector of Schools, Burdwan Division, Secretary. On the whole the Committee meetings were well attended, and a large number of difficult and complex points relating to the education of school children in hygiene were carefully considered and discussed. The labours of the Sub-Committee naturally fall under two or three main heads.

The first of these to be taken up was the method of providing suitable teachers of hygiene and the best method of imparting instruction to the teachers themselves. Under this head the following resolutions (though not necessarily covering the whole of the ground) seemed to be all that is required for the time being, and it will be observed that they are fairly comprehensive in themselves—

"(1) Resolved that every certificated teacher, whether Indian or European, should be required to satisfy the examiners in the subject of hygiene.

"(2) Resolved that for the purpose of imparting instruction in hygiene in Government training colleges and schools there should be for each district a special teacher trained in hygiene; that he should be associated more particularly with all grades of training schools in the district. As a rider it was recommended that, to begin with, smart Sub-Inspectors might be sent up for training by the Sanitary Department preparatory to their being employed as District Instructors in Hygiene. The term of their instruction in hygiene should be four months a year, until further development of the scheme be found necessary."

During the discussion on the above resolutions it was felt that eventually a fully equipped school of hygiene for training teachers would probably be required, but that it would be premature to recommend this at the present juncture. The Sanitary Commissioner was prepared to undertake the training of a limited number of members of the educational staff (*viz.*, one Sub-Inspector for a district) as teachers of hygiene until such time as a more permanent arrangement was felt to be necessary.

The third resolution, *viz.*—"That in the case of grown up women and girls in the higher classes of schools an advanced course of hygiene is essential, and that a thoroughly qualified medical woman should be appointed to teach hygiene in the schools under the jurisdiction of the Inspectresses of Schools"—was subsequently made the subject of discussion at a special meeting.

In dealing with the subject of hygiene in European schools it was felt that the Committee had not at their command sufficient information. Mr. Maclear, the Inspector of European Schools, was accordingly invited to attend the Sub-Committee meetings, and he was able to render much assistance in dealing with this subject.

The second and subsequent meetings were largely taken up in dealing with the subject of suitable text-books. Large numbers of these in both Bengali and English were circulated amongst the members of the Sub-Committee. Practically all the available books used by the education authorities in England and in this country were received and studied by the various members of the Committee. Two or three books in Bengali were also duly considered. As far as one is able to ascertain, no likely book on hygiene written either in English or in Bengali was excluded from the careful study of the members of the Committee.

In dealing with lower primary schools, the Committee was distinctly of opinion that no further attempt should be made than is now being made to teach hygiene up to

Standard III. A certain amount of oral instruction is given by the teacher, and some is already incorporated in the readers, but the Committee were strongly of opinion that no text-book on hygiene, however simple, was required earlier than Standard IV in vernacular schools.

It was therefore resolved—

"That 'Village Sanitation' by Dr. Kamakhy a Charan Banerji be used in Standard IV to supplement the departmental books and syllabus appointed for that standard in hygiene."

The Sanitary Commissioner with his officers undertook to carefully revise, correct and improve the above work, as there appears to be a large number of errors in the present edition. This work is now actually being carried out. The members of the Educational Service sitting on this Committee were strongly opposed to the multiplication of text-books, and emphasized the desirability of keeping the price as low as was consistent with quality. The Committee were also strongly of opinion that the book mentioned in the resolution should be the only one used for all vernacular schools above Standard IV, and the same book would be used year after year.

In dealing with middle English schools, high schools, etc., and for all Indian schools where English is the medium of instruction it was decided that Wren's Health Reader was the most suitable for the pupils from Class 4th and upwards.

Turning now to text-books necessary for training teachers of Indian high schools, it was thought desirable to have text-books both in Bengali and in English for this purpose. Consequently, after much careful consideration it was resolved that—

"Dr. Bank's Manual of Hygiene, Revised Edition, and Dr. Harinath Ghosh's 'Swasthya-Tattva', Parts I and II, be used by teachers in Indian high schools.

The subject of the text-books on hygiene for European schools was also very carefully considered. Although a very large number of suitable books were submitted to and examined by the Committee, it was felt that, with the possible exception of Dr. Bank's book, none were really satisfactory. Many very excellent books are in use in English schools, but these all omitted matters dealing with life in the tropics.

It was therefore resolved—

"To draw up a syllabus in hygiene suitable for European boys' and girls' schools to be divided into three parts—A, B, C. The teaching of this syllabus to be largely at the discretion of the Inspector and Inspectress of European Schools and suitable text-books for each part being suggested."

In the appendix to this report will be found a copy of the syllabus approved by the Committee and at least one suitable text-book for each particular section. The Committee were of opinion that in European schools it was undesirable to provide each child with a text-book, but that the teaching should consist of a series of lessons accompanied by demonstrations if possible. The text-books mentioned in the appendix are only intended as suitable for the teacher to prepare his or her series of lectures. This concludes the subjects of text-books.

The next subject that was discussed was the general arrangement for the teaching of hygiene in European schools.

It was resolved—

"That for each girls' school (European) an intelligent and suitable lady teacher should be trained by he St. John Ambulance Association in First Aid to the Injured and Nursing."

The next subject to be taken up was that of the various aids and additions to the teaching of hygiene which were at present feasible. It was felt that ma gic lanterns and slides were best suited to attract the attention of Indian children.

It was therefore r esolved—

"That in each district there would be a District Officer to teach hygiene in all Government schools in the district. He should be equipped with the following: a magic lantern, slides bearing on malaria, plague, water, life history of the housefly, simple physiology, etc."

The larger and more wealthy schools should certainly be encouraged to provide themselves with magic lanterns. The Education Department should be in a position to supply or to indicate where suitable slides on the subjects mentioned in the resolution above can be procured.

The Committee also wish to place on record their approval of the following charts and diagrams for teaching hygiene as far as the funds of the individual schools permitted:—

Schools should provide themselves with W. & A. K. Johnson's Physiological Diagrams, Series I, II, &c., and St. John Ambulance First Aid Diagrams, Thomas Nelson & Son's Royal Portfolio of Pictures and Diagrams for Object-lessons, Practical Physiology, Arnold's Diagrams.

Some members of the Committee were strongly in favour of making use of short sanitary maxims to be hung up in the school rooms.

The following resolution was passed :—

"That schools should further be provided with a series of six wall hygiene maxim cards to be published by the Baptist Mission Press of Calcutta."

It was felt that while these suggestions cannot be considered to be in any way complete, they would be sufficient for the present time.

Finally, the subject of instruction in hygiene of girls, both Indian and European, received very careful and special consideration. The subject had already been dealt with fairly fully in the consideration of the syllabus and text-books necessary for European schools; but the Committee were strongly impressed with the fact that a great deal more of advanced teaching in purely domestic hygiene and in the management of children and invalids and of matters relating to maternity was possible in a country like India.

As regards Indian girls the following important resolution was passed :—

"In amplification of resolution 5 of 1912-13, it was considered that a fully qualified Bengali medical woman, preferably with European qualifications, should be appointed at a pay of from ₹350 rising to ₹500 to teach advanced hygiene and domestic economy in Indian girls' schools within the jurisdiction of the Inspectress of Schools, Calcutta."

It was felt that no prescribed course of instruction should be laid down, but with a highly trained and tactful teacher it was better to leave matters entirely in her hands.

For teaching of a similar nature in European girls' schools, the following resolution was passed :—

"That the educational authorities should as far as possible encourage pupils of higher elementary schools to take the full supplementary domestic course after Standard VI, and that in lower secondary schools they should encourage the formation of domestic science supplementary classes to be attended either by pupils who have completed their sixteenth year or who have taken the Junior Cambridge Certificate.

"That a thoroughly well equipped school of domestic hygiene and allied subjects should be established in the near future in Calcutta, that the course should be made attractive and useful, and every endeavour should be made to adapt the course of teaching to the requirements of the rising generation of young women in Bengal."

The educationists on the Committee were of opinion that there is very little demand for a school of this nature at present; but many members of the Committee considered that an attempt should be made to create such a demand.

This closed the work of the Committee.

The printed proceedings of each meeting to be found in the appendix.

W. W. CLEMESHA, M.D., D.P.H., MAJOR, I.M.S.,
President, Hygiene Sub-Committee.

CALCUTTA,
The 21st April 1914.

Syllabus for Hygiene for European Schools.

PART A—PHYSIOLOGY.

(1) The human body as a whole.

(2) The skeleton; its uses and names of bones.

(3) The general distribution of the muscles and their functions.

(4) The circulation of the blood: the action of the heart.

(5) Description and function of the lungs with a brief description of the changes which go on in the blood during respiration.

(6) The digestive organs, including mouth, stomach, intestinal tracts, &c.: a description of the digestive organs with the various secretory glands.

(7) A short description of the various kinds of food and their uses.

(8) A brief and simple description of the changes that food undergoes in process of digestion.

(9) The excretory system, dealing particularly with the kidneys, sweat, glands, &c.

(10) A description of the nervous system, with simple remarks on the function of the brain nerves, spinal cord, &c.

Text-book—Physiology—Huxley's Primer.

PART B—HYGIENE.

(1) Hygienic conditions connected with the house, such as ventilation, evils of overcrowding, &c.; proper methods of disposal of kitchen waste, bath water, and sewage, &c.

(2) Proper arrangements for keeping food.

(3) Cleanliness of surroundings : sites for building and sites to avoid.

(4) Water—Necessity for pure water; brief description of good and bad wells; unsuitable sites for wells; necessity for town supply of pure water and where they usually come from; value of river water, lake and tank waters, rain water; simple method of purifying a doubtful water.

(5) Milk—Danger of a bad milk supply; proper method of keeping and preserving milk.

(6) Clothing and bodily cleanliness—Necessity for frequent bathing; proper and suitable clothing; evils arising from tight lacing and from unsuitably-shaped shoes: necessity for adequate supply of clean and suitable clothes and bedding; dangers attaching to dirty clothes; necessity for use of soap.

(7) Bodily exercises—Necessity for exercises to strengthen muscles in promoting proper and upright carriage and proper respiration; suitable form of exercises for boys, particularly gymnastics, football and hockey, &c.; and skipping, gymnastics, &c., for girls.

(8) For girls only—Description of the various methods of cooking food and their suitability under various circumstances of the home; necessity for special dietary and special cooking for young children and invalids.

Text-book—Reynolds' Hygiene Primer.

PART C—PREVENTION OF THE COMMON AND DANGEROUS DISEASES OF THIS COUNTRY.

(1) Parasites—Dangers of infestation by parasites; a description of the commoner ones and the dangers. Worms—Short description of the ring-worm and the necessity for early treatment.

(2 Water-borne diseases, particularly cholera, enteric, and dysentery.

(3) The importance of flies playing in the spread of diseases with reference to cholera, enteric, &c.

(4) Brief description of the personal and domestic prophylactic measures for plague.

(5) Brief description of malaria and how it is carried by mosquitoes; very brief description of the parasite and its life cycle in mosquitoes; a description of the life cycle of insects with particular reference to mosquitoes; short description of the habits of mosquitoes and their breeding-places; difference between the anopheles and the culex; importance of treating or getting rid of breeding-places in the neighbourhood of houses; personal prophylaxis: mosquito curtain, quinine, &c.

(6) Full St. John's Ambulance Course for Boys and St. John's Sick Nursing Course for Girls in addition.

Text-book—Dr. Banks' Manual of Hygiene, new edition.

S. G. P. I.,—Delhi—no. 525 D. of E.—16-11-15.

Proceedings of the First Meeting of the Hygiene and Sanitation Sub-Committee, held in the office of the Director of Public Instruction, on Tuesday, the 9th December 1913.

PRESENT.

MAJOR W. W. CLEMESHA, I.M.S. . . . . (*In the Chair*).
DR. J. H. GRAY.
RAI DR. KOILASH CHANDRA BOSE, BAHADUR, C.I.E.
MISS BROCK.
MR. H. A. STARK . . . . . *Secretary.*

ABSENT.

DR. SMITH ALLAN.
BABU SARADA RANJAN ROY.
SHAMSUL ULAMA MAULVI ABU NASR WAHID.

The Chairman observed that the Sub-Committee had been appointed at the First Meeting of the Special Committee appointed by Government to enquire into School and College Hygiene, and had been called together in terms of item 5 of the Proceedings of that Committee, dated the 22nd October 1913, and its business was to consider the present syallabuses in School Hygiene; to make definite recommendations regarding improvements that might be made in those syllabuses; and to advise what steps should be taken to give the subject the prominence it called for.

2. As the majority of the members of the Sub-Committee were not acquainted with the text-books now in use on Hygiene, it was decided to postpone consideration of them to the next meeting, by which time the Sub-Committee would receive copies of the various text-books from the Secretary.

3. The arrangements for teaching Hygiene were next discussed. The sense of the meeting was that the most hopeful means of spreading a knowledge of Hygiene was by providing schools with teachers who had themselves been carefully instructed in the subject. It was therefore—

Resolved that every certificated teacher, whether Indian or European, should be required to satisfy the examiners in the subject of Hygiene."

4. The meeting then considered the agency by which teachers might receive efficient instruction in Hygiene. It was anticipated that eventually a small school of Hygiene would be necessary; but to begin with it would be better to utilize such arrangements as now exist. The Sanitary Commissioner, Major Clemesha, said that there would be no difficulty in the way of his Department taking up the instruction in Hygiene of a limited number of teachers as a temporary measure and until matters had so advanced as to make permanent arrangements necessary. It was decided that, to commence with, only members of the educational services should receive training. It was accordingly—

Resolved that for the purpose of imparting instruction in Hygiene in Government educational institutions, there should be for each district a special teacher trained in Hygiene, and that he should be associated more particularly with all grades of training schools in the district. As a rider it was recommended that to begin with smart Sub-Inspectors might be sent up for training by the Sanitary Department preparatory to their being employed as instructors in Hygiene. The term of their instruction by the Sanitary Department should be 4 months a year, until further development of the scheme was found to be necessary.

5. It was also—

Resolved that in the case of grown-up women and of girls in the higher classes of schools, an advanced course of Hygiene is essential, and that a thoroughly qualified medical woman should be appointed to teach Hygiene in the schools under the jurisdiction of the Inspectresses of Schools.

6. It came under notice that Hygiene was entirely omitted from the curriculum of studies obtaining in schools for European boys. It was therefore—

Resolved that Mr. G. D'O. Maclear, Inspector of European Schools in Bengal, be invited to attend the next meeting of the Sub-Committee, and to favour the Sub-Committee with such proposals as he may desire to make for the introduction of a study of Hygiene in European schools for boys.

7. It was decided that the next meeting of the Sub-Committee be held in the office of the Director of Public Instruction on Monday, the 22nd December, at 2 P.M.

HERBERT A. STARK,

Secretary.

S. G. P. I., Delhi—No. 5_5 D. of E.—16-11-1915—140

Proceedings of the Third Meeting of the Hygiene and Sanitation Sub-Committees held in the office of the Sanitary Commissioner on Friday, the 30th January 1914.

Present:

MAJOR W. W. CLEMESHA, I.M.S. ... ... *In the chair.*

DR. SMITH ALLAN.

RAI KAILASH CHANDRA BOSE, BAHADUR, M.D., C.I.E.

MISS BROCK.

BABU SARADA RANJAN RAY.

MR. G. D'O. MACLEAR, Inspector of European Schools (by invitation).

MR. H. A. STARK. ... ... *Secretary.*

Absent:

DR. J. H. GRAY.

SHAMS-UL-ULAMA MAULVI ABU NASAR WAHID.

The Secretary stated that Dr. Gray was prevented by an engagement in connection with the Presidency Annual Athletic Sports from being present at the Meeting.

The Chairman reminded the members of the Committee that the business before them was to consider in what respects the text-books now used in schools by teachers and pupils might be improved, and what aids contributory to efficient instruction in Hygiene might be recommended to the general Committee. The books in question had been supplied to the members present, and had doubtless been examined by them.

After discussion, in course of which it transpired that—

(1) a large percentage of children abandon education at the Lower Primary stage;

(2) there is already a general complaint that school books cost more than school fees; and

(3) the tender age and elementary attainments of children in Lower Primary classes make it undesirable to amplify their present studies; it was—

I. Resolved that in the Lower Primary classes of all grades of schools no further attempt be made than is now being made to teach Hygiene and Sanitation in them.

Having examined the syllabus in Hygiene prescribed by the vernacular scheme for Upper Primary classes, it was—

II. Resolved that "Village Sanitation" by Dr. Kamakhya Charan Banerji be employed in Standard IV to supplement the Departmental books and syllabus appointed for that standard in Hygiene. Babu Sarada Ranjan Ray also suggested that the Primer on Hygiene by Rai Bahadur Dr. Harinath Ghose should be recommended as an alternative text-book in Standard IV, with "Village Sanitation" by Kamakhya Charan Banerji.

Inasmuch as some of the members of the Committee were not familiar with the books through which Hygiene is being taught to Standards V and VI, it was—

III. Resolved that the Secretary provide members with copies of the relevant text-books, and that consideration of them be deferred till the next meeting.

The Committee proceeded to consider the teaching of Hygiene in the classes proper to a High School, in which classes at present no Hygiene is being taught; and decided that that subject should be taught in them through the medium of suitable text-books written in English. The Secretary undertook to supply members with copies of Dr. Banks' and Colonel Gupta's text-books of Hygiene, and any other Hygiene manuals he might discover, so that they might be considered at the next meeting.

In respect of schools for European boys and European girls, Mr. Maclear and Miss Brock, respectively, agreed to put themselves in communication with educational anthorities at Home with a view to ascertaining what might be done for the introduction into these schools of a more suitable course in Hygiene than was offered by the Cambridge Local Examination text-books and syllabuses.

W. W. CLEMESHA,
Chairman.

HERBERT A. STARK,
Secretary.

S. G. P. I., Delhi—No. 525 D. of E.—16-11-15.—140.

Proceedings of the fourth meeting of the Hygiene Sub-Committee held in the office of the Sanitary Commissioner, Bengal, on Monday, the 16th March 1914.

PRESENT:

Major W. W. CLEMESHA, I.M.S.
Miss BROCK.
Mr. G. D'O. MACLEAR.
Dr. J. H. GRAY.
Dr. SMITH ALLAN.
Mr. H. A. STARK—(*Secretary*).

ABSENT:

Rai Dr. KAILASH CHANDRA BOSE BAHADUR, C.I.E.
Babu SARADA RANJAN ROY.

THE subject for discussion was what text-books in Hygiene should be recommended for (*a*) pupils in the classes proper to a High English School and (*b*) teachers teaching Hygiene to these classes. After discussion it was decided that—

(1) In Indian High English Schools—

Pupils in classes I, II, III and IV should read Health Reader by Wren.

Teachers should use any of the following:—

Manual of Hygiene by Banks.
Swasthya-Tattwa, Parts I and II, by Harinath Ghosh.
Hygiene for Beginners by Reynolds.

(2) In European schools—

Pupils should read no text-book; but instruction should be by teachers proceeding in accordance with a syllabus to be drafted by Major Clemesha, who would divide the syllabus into three sections. The Inspector of European Schools would adapt the study of hygiene in relation to the particular constitution of each school.

Teachers should be advised to read Health Readers I to III, by Shelly and Stenhouse, and the chapters of Banks' Manual of Hygiene treating of tropical complaints.

It was settled that the next meeting of the committee would be on the 23rd March 1914.

W. W. CLEMESHA, I.M.S.,
Chairman.

H. A. STARK,
Secretary.

S. G. P. I., Delhi—No. 525 D. of E.—16-11-15—140.

Proceedings of the fifth meeting of the Hygiene Sub-Committee held at the Office of the Sanitary Commissioner, Bengal, on Monday, the 23rd March 1914.

PRESENT:

MAJOR W. W. CLEMESHA, I.M.S. (in the chair).
RAI DR. KAILASH CHANDHA BOSE, BAHADUR, C.I.E.
DR. SMITH ALLAN.
DR. J. H. GRAY.
MR. H. A. STARK (*Secretary*).

ABSENT:

MISS BROCK.
BABU SARADA RANJAN ROY.

The subjects before the meeting were—

(*a*) the syllabus prepared by Major Clemesha, and

(*b*) apparatus and other accessories to the teaching of Hygiene.

(*a*) Major Clemesha read the Syllabus of Hygiene which he had drawn up for European schools, and it was agreed that he should kindly circulate it to the members of the sub-committee so that they might have an opportunity of examining it and offering suggestions.

(*b*) In Resolution No. 2 of the 9th December 1913, it was contemplated that in each District there would be a District Officer to teach Hygiene in all Government schools in the district. He should be equipped with the following:—

A magic lantern.

Slides bearing on malaria, plague, water, life history of the house fly, simple physiology, etc.

Schools should provide themselves with W. and A. K. John's Physiological diagrams, series I, II, etc., and St. John Ambulance first aid diagrams.

On Dr. Gray's suggestion it was agreed that schools should further provide themselves with a series of six wall hygiene maxims cards to be published by the Baptist Mission Press of Calcutta.

Major Clemesha announced that he had just received a copy of Marsden's "Easy Lessons on Health," and that he would circulate it to members so that it might be considered along with the book already approved, *viz.*, "Village Sanitation."

W. W. CLEMESHA, I.M.S.,
Chairman.

H. A. STARK,
Secretary.

S. G. P. I., Delhi,—No. 525, D. of E. 16-11-15—140.

18.

REPORT

OF THE

COMMITTEE ON EDUCATIONAL HYGIENE,

United Provinces.

1913.

Printed by F. Luxan, Superintendent, Government Press, United Provinces, Allahabad.

Price 3 annas.

EDUCATION DEPARTMENT.

The 22nd September 1913.

No. 1598/XV.—The following report of the Committee on Educational Hygiene is printed for general information.

Copies of the report are available for sale at the Government Press.

Report of the Committee on Educational Hygiene.

UNDER the orders of His Honour the Lieutenant-Governor, United Provinces, the Committee on Educational Hygiene met on the 11th June 1913 and sat on eighteen occasions between that date and July 5th, and again on July 28th and August 2nd, 1913.

The Committee was composed as follows :—

Lieutenant-Colonel W. Young, M.B., F.R.C.S. Ed., I.M.S. ... *President.*

Major J. D. Graham, M.B., D.T.M., I.M.S. ... ...
Captain C. L. Dunn, M.B., I.M.S. ... ...
Mr. H. Banister, B.Sc., I.E.S. ... ...
The Hon'ble Rai Gokul Prasad Bahadur, M.A., LL.B., F.A.U.... } *Members.*

The subject of educational hygiene was discussed under the following sections :—

I.—The hygienic requirements of school and college buildings.

II.—The hygienic requirements of hostels.

III.—The sanitary inspection of buildings, government and aided, and the medical inspection of scholars.

IV.—Quininization of scholars.

V.—The effect of the curricula on the health of the scholars.

VI.—The teaching of hygiene.

VII.—Personal hygiene of scholars.

VIII.—European schools.

IX.—Factory schools.

SECTION I.—*Hygienic requirements of school and college buildings.*

This subject was discussed under the following heads :—(1) choice of site, (2) drainage of site, (3) lighting, (4) ventilation, (5) type of building, (6) orientation, (7) cubic and superficial space, (8) furniture and equipment, (9) seating accommodation, (10) water-supply, (11) latrine and urinal accommodation, (12) playgrounds, (13) menial staff.

1. *Choice of site.*—The Committee recommends that the building should, if possible, be on a site which is *(a)* raised, *(b)* open, *(c)* large and *(d)* in suitable sanitary surroundings : *(a)*, *(b)* and *(c)* provide for the free access of pure air and light, and for suitable drainage. With regard to *(d)*, in the immediate vicinity of the school site there should be no tanks, depressions, hollows, rivers or watercourses, large open drains or premises in which insanitary trades are carried on, which would be likely to affect adversely the health of scholars.

2. *Drainage of site.*—The building should be raised on a plinth at least one foot above the ground, to be increased in proportion to the humidity of the soil in the area selected. If a raised site be not available, the plinth should be raised at least 2 feet. The immediate surroundings, to a distance of half the breadth of the building, should be suitably sloped. A pakka drain should surround the plinth, and should be connected with suitably sloped effluent drains, in order that storm water may be led away to the general drainage of the neighbourhood. This provision would ensure a dry and healthy site. The whole enclosure should be similarly drained, and all hollows and depressions filled in.

3. *Lighting.*—Light should be admitted by windows as much as possible in preference to doors, for the following reasons :—

(a) Windows are cheaper than doors.

(b) Windows can be opened, if desired, without exposing scholars to direct draught.

(c) Doors, when opened for purposes of extra ventilation, permit of the distraction of the attention of scholars by outside objects. This objection does not exist in the case of windows.

(d) The fewer the doors the less will be the risk of ingress of dirt and mud.

The bottom of the window-frame should be four feet from the floor. The total window area should be one-fourth of the superficial floor area. There should be no windows in the end walls. The windows in the lateral wall or walls should be so distributed that full lighting is obtained at the ends as well as in the middle of the room. The windows therefore should extend to the ends of the room. Where possible the window area should be equally distributed on both sides of the class room. In schools, which are only lit from one side of the room, the light should fall from the left of the scholars.

4. *Ventilation*—(1) The minimum area for the unobstructed ingress of pure air, irrespective of that provided by doors and windows, should be 48 square inches per scholar, and there should be a similar area for the egress of foul air.

(2) The Committee is of opinion that the best and simplest system of ventilation for primary schools is by *louvres* made of stone and built into the walls like a venetian blind. The inlets should be sloped from below upwards and from without inwards, and inserted at such a level that the lowest part of the louvred area is at least 24 inches from the floor, to allow of the ingress of pure air in seasons when the windows are closed. Similarly, exits for foul air should be provided by louvres sloped from within outwards and upwards, extending to within one foot of the ceiling. These should be protected by wire netting on the inside in the case of inlets, to prevent their being tampered with by the scholars. The upper louvres should similarly be protected on the outside, to prevent the entrance of birds, and the building of birds' nests. The outlets should be provided with rain protectors. Only the air space between the louvres should be considered in the calculation of the area required. The louvred area should be evenly distributed along the outside walls of the room. The same system would be equally efficient for higher schools if some of the well-known and more elaborate systems of ventilation are not preferred. It is desirable that all educational buildings should be constructed at a distance from surrounding ones, to permit of the free circulation of air. The distance from a boundary should be at least equal to the height of the highest building on that boundary, with a minimum of 40 feet.

5. *Type of building.*—(1) *Primary schools.*—The ideal plan of a primary school should fulfil the following conditions :—

(a) The schoolrooms should, if possible, be square. If the building contains more class rooms than one, these should preferably be placed end to end, in one line. This type is that which has been found most suitable in dormitories, barracks, hospitals, &c., for providing good lighting and ventilation. Extensions should be made on the principle laid down for middle schools.

(b) The area of a class room should not be less than 400 square feet.

(c) Class rooms should not directly communicate with one another. Inter-communication can be attained by means of verandahs.

(d) Light and ventilation, as provided for in paragraphs 3 and 4 of this section, should be arranged for.

(e) A verandah should be provided on the side of the building which faces mainly towards the south.

(f) The class rooms should provide at least 12 square feet of floor area per scholar and should be not less than 15 feet high.

(g) The flooring should be at least one foot above the ground level, and should not be of anything inferior to brick on flat, laid on kankar. Stone flagging, however, is preferable.

(h) The roof should be of the jack-arch type, of pakka brick. This is the cleanest and most hygienic.

(i) No internal cornices or beams, or places on which dust, &c., can settle, should be allowed in class rooms. The corners of all rooms, and the junctions between the floors and walls, should be rounded to facilitate cleaning.

The interior walls of class rooms should be of a medium grey colour.

If, however, for financial reasons, a building of the type recommended cannot be erected, the buildings utilized should be on a suitable site, with ample light and ventilation. Such a building may consist of a simple open shed, with a pakka floor raised at least one foot above the ground. The shed, if open on one side only, should not exceed 15 feet in width; if open on both sides, it should not exceed 25 feet. The eaves should be at a height of not less than 6 feet 6 inches from the floor. The roof of a shed not exceeding 15 feet in width, if requiring internal support, should rest upon pillars or posts, and not upon a longitudinal dividing wall, even partial. This building, however, is considered to fall far short of the ideal, both educational and hygienic, and should be considered only as a temporary arrangement, until such time as funds are available to provide a proper building.

(2) *Middle schools.*—Middle school buildings should conform exactly to the conditions, as given above, for primary schools. When limitations of site interfere with extension of the line of class rooms, further additions should be made by erecting a second line of buildings parallel and similar to the first, at a distance equal to at least their height, and connected to the first by a covered way. The Committee does not approve of additions being made by erecting new class rooms, at right angles to the end rooms of the main block, as provided for in the type design. This method interferes with the ventilation and lighting of the end rooms, and necessitates direct communication between these rooms and the adjoining ones.

(3) *High schools.*—With regard to high schools, the standard plans of the Educational department appear satisfactory. In these buildings, owing to the number of class rooms, and from considerations of space, it is impossible to have the class rooms all in one line.

(4) *Colleges.*—It is difficult, and scarcely necessary, to lay down any definite type of building as specially suitable for colleges, since their requirements are so variable.

6. *Orientation.*—(1) With regard to primary and middle schools, the Committee is of opinion that the building, if provided with only one verandah, should face north-west and south-east and have its verandah on the side which faces south-east. Such a building would be better if provided with a small verandah at the south-west end in addition, to protect that end from the sun.

(2) High school buildings should face north and south, as in the standard plans at present in vogue. In this way the majority of the class rooms would be protected from the hot west winds. The prevailing winds in these provinces are east or west, and as these buildings are provided with passages running in the same direction, the greater part of the school is properly ventilated. Those class rooms which are in the wings, and whose door face west, can, if necessary, be cooled by *khaskhas tattis* if used during the hotter part of the day.

7. *Superficial area and cubic space.*—The Committee regards the question of space as an important one both from the educational and hygienic points of view. In primary schools the floor area should be determined from a consideration of the following requisites:—

(a) A sitting space of 4 square feet per scholar.

(b) A teacher's space at the end of the room, not less than 5 feet wide.

(c) A central gangway, 2 feet wide, from the teacher's end to the back of the room.

(d) Gangways, 2 feet wide, on both sides of the room, between scholars and the side walls.

(e) A space of one foot between the back row of scholars and the back wall.

(f) A space of not less than one foot between rows of scholars.

The allowance of 4 square feet of sitting area per scholar, and the provision of an additional space of one foot between rows of scholars, ensure that they do not sit too closely together—a very necessary provision in a hot climate where ample ventilation and circulation of air around the individual pupils is so essential. The central and side gangways are necessary in order that the teacher may be able to move without difficulty among his pupils. A room complying with these conditions will provide an average floor area of 12 square feet per scholar. This exceeds the minimum allowed by the English Board of Education, *viz.* 10 square feet, but it must be remembered that in English schools use is generally made of artificial means

of ventilation to ensure a sufficiency of fresh air. Natural ventilation cannot be depended on to ensure this under all circumstances; in Indian schools such artificial systems are not practicable. The Committee therefore recommends that 12 square feet of floor area per scholar be the minimum allowed, in primary schools, in class rooms in which only one class is taught, and there should be between classes a space of not less than 6 feet when the classes are taught by separate teachers. When it is considered that even a child in a temperate climate requires at least 1,500 cubic feet of fresh air per hour in a school room in which the air is changed at the ideal rate of three times per hour, it is obvious that the cubic space to be allowed to each scholar should be 500 cubic feet, in addition to the space occupied by the scholar himself and the school appliances. It will thus be seen that the allowance of 12 square feet and 144 cubic feet * per scholar—the latter including the volume of the scholar himself and his proportion of school appliances—falls far short of the ideal, and is only countenanced by the Committee in view of its recommendations (vide section V) that the class rooms be thrown open and thoroughly ventilated at short intervals. Many think an allowance of 10 square feet of floor area per scholar is sufficient. The Committee would view with grave concern any proposal to reduce the space allowed under the Educational Code of 1910, which is, in its opinion, the absolute minimum.

In the case, however, of village primary schools temporarily accommodated in a shed as described in paragraph 5, an allowance of 10 square feet might be permitted.

For colleges and Anglo-vernacular schools the Committee considers an allowance of 15 square feet per scholar, as provided in the Educational Code, a sufficient minimum. The students and scholars in these institutions are generally older, and are accommodated with desks and seats. They therefore require greater space. If more than one class is taught in a class room, there should be between classes taught by separate teachers a space of not less than 6 feet. In laboratories still more space is required.

8. *Furniture and equipment.*—The black board should be dull black, not glossy. Maps also should not be highly glazed, as it is injurious to the eyesight of the scholars to look at glazed maps for long periods. The Committee considers that the usual posture adopted by scholars in primary schools for reading or writing while sitting on the floor is not objectionable, as in reading or writing one knee is generally used as a desk. Masters should be responsible for seeing that scholars do adopt this position with the knee raised, in order that spinal curvature and undue compression of the thoracic and abdominal organs may not be produced. In those schools in which seats and desks are not provided, pieces of munj matting, or other material of this nature, should be supplied, and these mats should be kept clean and renewed when necessary. Each scholar should be responsible for keeping his own mat clean, and each mat can be numbered so that the scholars may know their own. The Committee took the evidence of Mr. Ram Das, Deputy Inspector of schools, Naini Tal district, who is a Sarasut Brahman and a resident of Bareilly. This witness states that there is no objection to any Brahman boy cleaning his own mat. He also states that boys are in the habit of doing this regularly at present in the Naini Tal district. The Hon'ble Rai Gokul Prasad Bahadur, a member of the Committee, says that all the boys in the Brahman schools in Benares have their own mats, and have themselves to keep them clean. If parents or guardians have any objection to any boy using the mats provided, it might be optional for them to provide their own mats of the recognized pattern.

Boys should also keep their own books, slates, &c., clean, and the school should provide material such as *jharans*, water, &c., for this purpose. Cleaning slates by spitting on them should be strictly prohibited.

As far as practicable, all almirahs for books and school materials should be built into the walls, in order to avoid collection of dust, &c. Where this is not done the tops of the almirahs should be sloped in order to allow of easy cleaning; they should be raised on legs at least 12 inches in height to facilitate cleaning underneath. Schools should be swept out daily and kept clean and tidy. Masters should be held responsible for seeing that these instructions are carried out.

* In calculating cubic space for ventilation purposes no height above 12 feet is considered.

Books should be clearly printed on paper through which the printing does not show, and the type used should be large. The Committee examined a set of books used in the vernacular schools throughout the province, exhibited by Mr. Ram Das, Deputy Inspector of schools, Naini Tal, and is of opinion that all the readers satisfy the above requirements of the Committee, but that the type of the arithmetic books in Hindi and Urdu characters for classes I to VI is too small for the use of the boys of the age using them, and that the use thereof would be injurious to their eyesight.

9. *Seating accommodation.*—In schools or colleges where desks are used, the Committee is of opinion that seats and desks should be provided for each scholar separately. This plan is preferable to combined seats and desks for several scholars. With regard to the type of desks for scholars of various ages, the Committee is of opinion that it cannot do better than quote the recommendations of Mr. T. G. Roper, one of His Majesty's Inspectors of Schools in England under the Board of Education, as representing their requirements in this respect. These are as follows:—

"(1) The height of the desk above the bench should be such that when the child is sitting down he can place both his forearms comfortably on the desk without raising or depressing the shoulders.

"(2) The height of the seat above the floor, or surface on which the foot rests, should correspond with the length of the child's leg from knee to heel. When the child is sitting down, his legs should not dangle in the air, nor should his knees be elevated above the seat.

"(3) The seat should be wide enough to give support to the upper part of the thigh. It should be at least 10 inches (but better 12 inches) wide. To prevent slipping forward, the bench should be hollowed out towards the back to the depth of an inch.

"(4) Every seat should provide a support for the back of the sitter. This support should be hollowed out in such a way that the upper part of it may fit the concavity of the back.

"(5) The desk must overhang the bench during the writing lesson, in order that the child may be able to sit upright and at the same time support his back. This posture is only possible when the desk overhangs the seat from 1½ to 2 inches.

"(6) The desk should not be level for the writing lesson, but slightly sloping. The slope should not exceed an angle of twenty degrees. The difference between the upper and lower edge of the desk, therefore, should be about 3 inches vertically.

"(7) As the desk which is most suitable for writing is inconvenient for other purposes, the easiest plan of adapting it to all uses is to make the upper part of it movable.

"The desks should be designed so that they can be readily adjusted—

(a) to give the right height for the length of the pupil's body;

(b) to give the natural slope required for drawing, reading and writing; and

(c) to enable pupils to work, alternately sitting and standing, with the desktop quite flat or at a slight slope, at the required height.

"When the seat and the desk are properly adjusted the distance between the top of the desk and the child's eye will be about 14 inches, which is considered to be the most suitable."

These desks should be placed at right angles to the light, and in rooms where there is only light from one side; as previously mentioned the light should fall from the left to the scholars. Gangways 24 inches wide are necessary down the centre of the room and along both sides. Where desks are used, matting on the floor should not be allowed: it is not necessary, and harbours dirt. The desks should not be of the box pattern, as this leads to slovenly habits and the collection of undesirable odds and ends. An open shelf may however be provided if desired.

10. *Water-supply.*—Where a municipal filtered supply is not available, water can be obtained from wells which may be either kachcha or pakka, shallow or deep, open or closed, and provided with a pump. The Committee is of opinion that under no circumstances should kachcha or shallow wells be permitted. All wells should have an impervious cylinder throughout. If a pump be not provided the well should have round its mouth, and sloping away from it, a platform with a marginal gutter opening into a pakka effluent drain, connected

with the surface drainage of the locality, to carry off all surplus water. Absorption pits are entirely disapproved of for getting rid of the surplus water. The well must be provided with a parapet at least 2½ feet high, which should have a sharp coping at the top, the slope being to the outer side. It is advisable to protect the edge from breakage by sheets of iron, both inside and outside. The well should be provided with a *girari*, so placed that the rope sustaining the *dol* will be within the reach of persons using the well. A covered well provided with a pump is the best method of using well water-supply, and whenever possible should be insisted on. In the provision of a new water-supply for any school a covered well fitted with a pump should, if possible, be installed. The general level of the ground water in the United Provinces is, with some exceptions, from 20 to 35 feet below the surface, and water at this distance can be raised by cheap and efficient pumps such as described below. The pitcher spout pump, which costs about Rs. 8 for the head and eight annas a foot for the tubing and valve rod, is recommended in those cases where the water has to be raised not more than 25 feet. Four workings of the handle deliver about a gallon of water. It is used with success by the Agricultural department. Many of these pumps have been sold by this department to cultivators for irrigation purposes, and have proved successful. For greater depths the Committee recommends a chain pump, which will not cost more than Rs. 100. This type of pump gives a very large delivery. Spare parts for both types of pump are readily obtainable at small cost and are easily fitted. Care should be taken that boys do not misuse the pumps, which should be kept in good repair.

Under no circumstances should a latrine be permitted within 100 feet of a well. If there is a municipal water-supply the school should be connected up with this, and taps provided in the compound in such number as is considered necessary. Effluent drains to carry away surplus and spilt water should also be arranged in connection with these. All existing arrangements for supplying water which do not come up to the standard laid down above should be brought up to this standard at as early a date as possible.

11. *Latrine and urinal accommodation.*—The Committee regards the provision of proper latrine and urinal accommodation as not only necessary in the interests of the health of students and scholars and of the sanitation of the college and school premises, but also as having a distinctly educative value.

In towns with pipe water-supply and sewerage, modern water flush latrines and urinals should be provided and connected up with the sewers. In towns or villages with no adequate system of pipe water-supply and sewers some other system must be employed.

The corrugated iron latrine and the unglazed brick latrines which are in common use are unsatisfactory. The former has to be coal-tarred at regular intervals and is seldom properly cleaned before the new coat of coal tar is applied. It thus becomes highly insanitary. The unglazed brick latrines are absorbent and become highly insanitary and offensive after use. A sanitary pattern of latrine must be non-absorbent and absolutely smooth as regards the surface of the seats and enclosing walls to a height of 3 feet from the seats. A suitable material for this purpose is to be found in Indian patent stone or glazed bricks with non-absorbent cement pointing.

The type of latrine which commends itself to the Committee and which has proved sanitary and efficacious in many towns in these provinces is the Donaldson pattern separate system latrine, with non-absorbent seats and walls as above described and airtight T.M. receptacles. Such a latrine should have an enclosure wall of fenestrated brickwork. Like latrines, urinals should have a surface of non-absorbent and smooth material such as Indian patent stone, capable of being readily washed and disinfected. The Hardwar pattern of urinal is one of proved efficiency and is recommended. Here, again, airtight T.M. receptacles should be used.

The question of the installation of septic tanks in connection with latrines in educational institutions was carefully considered. The evidence of Mr. C. H. West, Sanitary Engineer to Government, was taken, and it was decided that this system is not suitable for schools and colleges, which are not occupied all the year round.

Latrines should not be provided, however, in day schools, unless an adequate sweeper staff is available. If no sweeper is entertained, there should be neither latrine nor urinal. Every effort, however, should be made to provide latrine and urinal accommodation, as economy in this respect tends to render the school surroundings highly insanitary. In municipalities and

towns where no difficulty regarding the provision of sweepers exists, latrines and urinals should in all cases be provided. In hostels, latrine and urinal accommodation is essential. In all schools where they are to be provided, the following scale is recommended :—

Day schools.—One latrine seat and two urinals for every fifty scholars.

Hostels.—Two latrine seats and one urinal for every twenty scholars.

The Committee is of opinion that the time has now come when it should be brought more forcibly to the notice of teachers that they are individually responsible for seeing to the sanitary condition of the premises, latrines, urinals, &c., and would recommend that much more care and attention should be paid to these matters by all those whose duties bring them in any way in contact with educational institutions. All inspecting officers should pay special attention to this point at the time of their visits.

12. *Playgrounds.*—Playgrounds are not considered necessary in village schools, as there is generally a piece of waste land in the village which is used for play. The provision of playgrounds for these schools, moreover, is often rendered impracticable on account of the cost. It is, however, necessary that the schools should be separated from the streets, and that a certain amount of seclusion be given to them. For this reason these buildings should, in all cases, be given small compounds with boundary walls, which would prevent cattle, &c., straying into the premises. In towns, however, the Committee is of opinion that, in addition to the large recreation grounds which are essential for organized games such as football, cricket and hockey, in connection with middle and high schools and colleges, playgrounds are essential for all schools, and that every effort should be made to provide them. The size of the playgrounds should vary with the number of scholars. The minimum space should be 30 square feet per scholar. All playgrounds should be fairly square or oblong, not cut up by buildings, and they should be properly cleaned, levelled, drained and enclosed. It is desirable that a portion should be covered, to provide shelter from rain. The shade of a few good trees is an advantage. Where the requirements for playgrounds have been satisfied and additional space is available, this might be converted into a garden. Gardens have an educative value, and if well kept, improve the appearance of the surroundings of the school. The provision of a garden may, however, necessitate the entertainment of a *mali;* if one is not provided and if the master does not take sufficient interest in gardening to look after it himself, the Committee does not suggest that one be kept up. Every encouragement, however, should be given to masters who takes an interest in their school gardens.

The Committee does not consider the provision of gymnasia generally necessary. It considers that the health of scholars is much better served by participation in physical exercises and organized games, which also have a distinctly educative value.

13. *Menial staff.*—An adequate sweeper and menial staff should be provided to attend to the latrines, to sweep out all buildings once a day and to keep the playgrounds clean. Where the water-supply is from a well and the number of scholars renders it necessary, a menial should be employed to supply water.

SECTION II.—*Hygienic requirements of Hostels.*

This subject was discussed under the following heads: (1) site, (2) drainage of site, (3) lighting (day and night), (4) ventilation, (5) type of building, (6) orientation, (7) cubic and superficial area, (8) furniture and equipment, (9) cook-houses and dining rooms, (10) water-supply, (11) latrine and urinal accommodation, (12) menial staff, (13) supervision, (14) hospital accommodation.

With regard to nos. (1) and (2) the recommendations of the Committee for school buildings also apply to hostels.

3. *Lighting.*—The amount of window and glazed door area provided in rooms used for study should be equal to that provided for class rooms, that is one-fourth of the floor area. In view of the fact that scholars cannot be trusted to provide themselves with good artificial light for night study, the Committee is of opinion that proper lighting arrangements should be provided as part of the hostel equipment, as it is very objectionable that scholars should study by the light of inefficient *chirags* and inferior lamps of insufficient candle power, as is not infrequently done. Where electric light is available, it should always be used for general illumination. The

number of candle-power units of the lights provided should be roughly one-sixth of the floor area in square feet, in a room with whitewashed walls. Suitable lamps should be selected accordingly, and should be suspended in the middle of the room 8 feet from the floor, if scholars are not provided with individual lamps, an arrangement which the Committee considers preferable. The candle-power of such individual lamps should be about 8 or 10, and they should be provided with shades to cut off direct light from the scholars' eyes. All lights should be extinguished by 10 p.m.

4. *Ventilation.*—Direct openings of an area of at least 2 square feet for three boarders should be provided in both front and back walls over the doors and windows. These should communicate directly with the outer air and be rain-protected and unglazed, but provided with small mesh wire-netting. No special inlet space near the floor is considered necessary in view of the existence of the door and the size of these openings.

5. *Type of building.*—The types of buildings for hostels submitted for examination by the Educational department were approved subject to necessary modifications in order to provide for the requirements of the Committee with regard to lighting, ventilation, superficial area, cubic space, roofing, &c. As in the case of class-rooms, all corners should be rounded and beams and projections as far as possible avoided. The jack-arch roof is here also advocated as the best for India. A night latrine, as is provided for high school hostels, should be provided for middle school hostels.

6. *Orientation.*—Buildings of the types submitted should be placed with the front of the building either to the north or to the south, but not to the east or west.

7. *Cubic space and superficial area.*—Each room, which in the type-design provides for the accommodation of three scholars, should, in the opinion of the Committee, be of such area as will provide at least 50 square feet of floor area per scholar; a room 13 by 12 would approximate to this requirement. The height of the room should be not less than 15 feet, of which only 12 feet should be taken into account in the calculation of the cubic space. This would give a cubic space of 624 cubic feet per occupant, inclusive of his own volume and that of his furniture. This, while considerably short of the ideal, is for practical purposes considered sufficient.

8. *Furniture and equipment.*—The Committee is of opinion that all existing wooden beds should be replaced as quickly as possible by iron ones with galvanized iron or copper wire mattresses. Wooden beds, strung with *ban* or *newar*, harbour bugs and lice and other vermin in large numbers, as is well known. A closed wall almirah for the storage of books and clothes, a table, and a chair of a height suited to the size of the scholar, as recommended for class rooms, should be supplied to each. Matting for the floor is not recommended, with the exception of a small bedside mat or *durrie*, 3 by 2 feet, for each scholar. The reading-room should be provided with ordinary tables and chairs, and should be illuminated at night by hanging lamps equal in candle-power units to one-sixth of the floor area in feet. No matting is necessary on the floor of the reading-room.

9. *Cook-houses and dining-rooms.*—Cook-houses should have proper drainage to carry away kitchen sullage, and suitable arrangements should be made for flushing the drains. Proper receptacles, having covers to prevent accumulation of flies, should be provided for dry sullage. These should be emptied and cleaned twice daily after use.

In dining-rooms for Muhammadans and Christians, tables and chairs as in the reading-room, in adequate numbers, are necessary. Ample chimneys should be constructed in cook-houses to obviate the soot and smoke nuisance.

10. *Water-supply.*—The recommendations already made with regard to the water-supply of schools apply here also. Accommodation for bathing and washing is however an additional necessity. For these purposes a circular platform, with a marginal drain to carry away effluent, should be provided. This should not be round a well, but constructed at some distance therefrom. If there is a pipe water-supply, the centre of the platform should be occupied by a standpost with a sufficient number of taps, radially arranged. With a pump supply, a reservoir of suitable size might be provided to supply the standpost at the bathing platform. The Committee does not recommend an enclosed room for bathing.

11. *Latrine and urinal accommodation.*—In addition to those required for day use, viz. two latrines and one urinal for every twenty boys (vide paragraph 11 of section 1), a night latrine as provided for in the type-design for government high school hostels should be provided in connection with all hostels. Besides these, removable urinals, such as the Donaldson iron basket type filled with sawdust or dry earth at the rate of at least one for every twenty-five boarders, are necessary, and should be placed at convenient points in the courtyard for night use. These should be removed altogether in the daytime and cleaned and replaced at night.

12. *Menial staff.*—Sufficient menial staff should be provided to ensure the cleanliness of the latrines, living rooms, enclosure, &c. At a convenient time during the day and at least once a week the furniture should be removed from each room, the doors and windows thrown open for at least two hours, the rooms thoroughly swept out, and the furniture cleaned and replaced.

13. *Supervision.*—The superintendent should be primarily responsible for the control of the menial staff, and should satisfy himself that cook-houses, dining-rooms, living rooms, latrines, &c., are kept in a thoroughly sanitary condition. The type-design of his quarters is considered satisfactory. His latrine receptacle should be of the type recommended for schools and hostels, and should be dealt with on the same principles.

14. *Hospital accommodation.*—In view of the fact that in many cases boarders attend schools and colleges at a distance from their homes, and have no relatives near at hand to whom they may go in times of sickness, while at the same time it is very desirable that there should be a room or rooms to which suspected cases of infectious disease may be removed, it is important that there should be segregation rooms in connection with every college and Anglo-vernacular school hostel. The Committee would insist on the importance of these being provided, and would suggest that taking the type-design for Anglo-vernacular high school hostels, a small compound on the side opposite to that on which the kitchens are situated, and similar in general design to the kitchen compound, be constructed. In this compound there should be three separate rooms with the usual offices for every fifty boarders.

General remarks.—The Committee has laid down in detail the above recommendations for scholastic buildings in general. In existing schools and colleges, whether government or aided, not built according to the approved type-designs and not in all respects complying with the minimum requirements above laid down, every effort should be made to adapt them as far as possible to the standard. There will, for instance, be no difficulty in preventing overcrowding of class rooms and hostels, of improving ventilation, lighting and latrine accommodation, and ensuring a proper standard of cleanliness. Water-supplies where unsatisfactory can probably in many cases be considerably improved, in accordance with the suggestions of the Committee. In erecting new buildings however the type-designs and the hygienic requirements laid down should be adhered to with regard to government institutions and, if possible, aided ones also.

SECTION III.—*Sanitary inspection of buildings, government and aided, and the medical inspection of scholars.*

The Committee is of opinion that the periodical inspection of the sanitary condition of all schools is necessary in the interests of the health of the scholars, and would suggest for the consideration of Government the immediate introduction of rules providing for a thorough inspection, from a hygienic point of view, of all recognized Anglo-vernacular schools, colleges, and hostels, as well as of institutions applying for recognition. Institutions already recognized which fail to obtain a satisfactory sanitary certificate, within a period to be decided by Government, should have their recognition withdrawn, and the production of such a certificate should be a *sine qua non* for recognition. It may be observed that similar rules are already in force in Madras, as evidenced by the following extracts from chapter III of the Madras Educational Code:—

Paragraph 34.—"Every school-building shall be maintained in substantial repair and in a cleanly condition. It shall be subject to inspection by the Educational Inspecting Officer, and such officers of the Medical, Sanitary and Engineering departments as Government may direct."

Paragraph 35.—"The following sanitary certificates shall be provided before recognition is accorded, and on any subsequent occasion if called for—in the presidency town a certificate signed by the Sanitary Commissioner, the Deputy Commissioner, the District Surgeon, or the Health Officer of the municipality; in the mufassil a certificate signed by the District Medical Officer or, if satisfactory reasons are given, by a subordinate medical officer."

Certificate.

"I hereby declare that I have inspected the . . . school-building and premises on the . . . and certify that the accommodation provided for each of the several classes is sufficient for the maximum number of pupils taught therein, and is properly ventilated and lighted; that the building is maintained in substantial repair; that it is neat and clean; that the latrine arrangements are adequate and satisfactory; that the supply of drinking-water is wholesome; and that in all other necessary respects the sanitation is good."

Station———————

Dated——————— Signature———————

Similar rules should gradually be enforced for every class of educational institution.

The Committee is also strongly of opinion that the periodical medical inspection of scholars should be instituted. Such inspection would often facilitate the prevention of contagious and infectious diseases, and would frequently lead to the timely treatment of defects, deformities, and diseases, before these had reached an incurable stage. The diseases to which special attention should be paid are eye-diseases, infectious diseases, skin diseases, malaria, and tuberculosis. With reference to malaria, the institution in other districts of the prophylactic administration of quinine on the lines pursued in the Meerut district, as detailed at full length by Babu Ratan Chand in his evidence, appendix A, and by Major Graham, I.M.S., in his note, appendix B, is strongly recommended. With regard to the agency to be employed to carry out the inspection of the sanitary condition of school and college-buildings, boarding-houses, &c., and the supervision of the prophylactic issue of quinine, the Committee is strongly of opinion that the existing higher medical staff of a district, i.e. the Civil Surgeon and his Assistant Surgeons, cannot possibly cope with the extra work which would be entailed in the carrying out of these various duties, while the sub-assistant surgeons are not qualified to do it. Excluding the regular medical staff, there is no existing agency which could be used. It is obvious therefore that some other agency must be created, and the Committee recommends that the system, which has to a small extent been introduced in these provinces, of appointing district sanitary officers of the assistant surgeon grade, with special sanitary qualifications, should be extended, so that at least one such officer be employed in each district. These officers should have passed the examination prescribed for the medical officers of health of second grade municipalities, held at the King George's Medical College, Lucknow, or an examination recognized as equivalent to this. The duties of these officers would be those of a medical officer of health of the district, district mortuary registrar, and school medical officer in addition. This system of combining these offices is in force in England in areas where the work can be done by one man. These officers should be required to inspect the sanitation of schools and boarding-houses periodically, to inspect the scholars, and to supervise the prophylactic administration of quinine in the malarial season. In first and second class municipalities which have medical officers of health of the grades required by Government, these duties could be carried out by these officers in the areas under their jurisdiction. The work of the district sanitary officers, as well as that of the municipal health officers, should be inspected by the Sanitary Commissioner and his deputies while on tour. The district sanitary officers would be regarded as the district representatives of the Sanitary department, and might be formed into a provincial service under the Sanitary Commissioner. The department might embrace the health officers of first and second grade municipalities, as well as the special instructors in malaria and in hygiene referred to later in this report.

The Committee has gone carefully into the question of the amount of work which would be thrown on these district sanitary officers if these proposals are accepted. Referring to the report of the Director of Public Instruction, United Provinces, for 1912, it is found that the

school population of the United Provinces in that year was in round numbers seven hundred thousand, and that the number of schools was sixteen thousand. This gives an average of about 330 schools and fifteen thousand scholars per district. Major Graham, I.M.S., found that, under the best possible auspices with everything arranged for him it took him personally eighteen days to examine scholars, assess quinine doses, &c., for 8,650 scholars in the Aligarh and Meerut districts during his quininization experiments there, i.e. an average of 480 scholars daily. This work was done with the aid of a motor car. The Committee is of opinion that half an hour is the average time needed to inspect the sanitation of a school, and that two minutes must be devoted to the examination of each scholar for eye diseases, skin diseases, infectious diseases, and malaria. If the examination is also to include tuberculosis the time required would be longer. On an average therefore, with fifteen thousand scholars in a district, it would take the school medical officer at least 500 hours to inspect all the scholars and he would thus spend 665 hours in inspecting both schools and scholars. Schools have only about 200 working days in the year, so that if the school medical officer were required to inspect each school and its scholars once a year he would have to spend about 3½ hours daily in actual school inspection work during school working days. This calculation does not take into account the time occupied in travelling from one school to another and presupposes working under the best conditions. The Committee, however, is of opinion that if the district sanitary officer is to be the school medical officer in addition to his other sanitary duties such as inspecting town and village sanitation, supervising vaccination, and dealing with outbreaks of epidemic diseases it will be quite impossible for him to inspect all schools or scholars in his district annually. In England scholars are required to be examined three times during their school career—once at entrance, once on leaving, and once at some intermediate period. The Committee is of opinion that it would be sufficient if the district sanitary officers inspects all high and middle schools and all boarding-houses once a year, both as regards the sanitary condition of the buildings and their surroundings and the medical inspection of scholars, but that primary schools need not at present be inspected oftener than once in two or three years. In the future, when it may be expected that the average number of schools and scholars in a district will largely increase, some sub-division of the work may prove necessary. A form of inspection report should be used by the school medical officers giving the headings under which he should make his remarks, both for school buildings and hostels, such as (1) site, (2) drainage, (3) lighting and ventilation, (4) type of building and orientation, (5) cubic and superficial space, (6) furniture and equipment, (7) water-supply, (8) latrine and urinal accommodation, (9) playgrounds, (10) menial staff, (11) hospital accommodation, (12) cook-houses and pantries. Copies of his inspection report should be sent to the managing body of the school concerned, to the Educational department in the case of high and middle schools, both vernacular and Anglo-vernacular, and to the Sanitary department. With regard to the medical inspection of scholars, there should be in the custody of the head master, for each scholar, a medical history card which should provide for three inspections. On transfer from one school to another the head master of the school to which the scholar is transferred should obtain the card from his last school. Copies of inspection remarks by the school medical officer should be sent to the scholar's parents after entry in the medical history card (sample card is appended, appendix C). On the occurrence in any school or college of a spreading outbreak of pneumonia, small-pox, measles, or diphtheria, the school medical officer should have the power to order the immediate closure of the institution, reporting his action at once to the Deputy Sanitary Commissioner for approval to the Educational department and to the managing body. The duration of the closure should be determined by the Deputy Sanitary Commissioner. Scholars or students suffering from ophthalmia, open tuberculosis, small-pox or other zymotic diseases, secondary syphilis, or leprosy, should be excluded from schools and colleges.

The duties of such a district sanitary officer would appear at first glance to be more than he could contend with, but it is considered that he can inspect the sanitation and vaccination of a village and of the school, and individually inspect the scholars in one visit, and thus fulfil all his duties for that particular village. If, therefore, the periodical inspections are not required to be too frequent, he should be able to attend to his duties to the satisfaction of Government.

The ideal to aim at, however, is a whole-time school medical officer for a group of schools consisting of such a number of scholars as will permit of the annual medical inspection of each school and scholar and the supervision of quininization. The qualifications of the school medical officer should be the same as those of the district sanitary officer. If such a separate agency be established in the future, the committee is of opinion that the school medical officer should be under the district sanitary officer, who would be the local representative of the Sanitary department, and that both these officers should be under the control of the Deputy Sanitary Commissioner.

The Civil Surgeon of the district should, for statistical purposes, supply the district sanitary officer with full information regarding the incidence of the various diseases as recorded in his hospital registers. This would enable the district sanitary officer to check the returns of vital statistics in his district supplied through the agency of the police. The services of the Civil Surgeon's second clerk, who was originally entertained as district mortuary registrar's clerk, should be transferred to the district sanitary officer for employment in the maintenance of mortuary and sanitary registers, compilation of mortuary, vaccination, and other sanitary statistics, and the general correspondence of the office. These are the duties on which he is at present employed in the Civil Surgeon's office. To avoid the necessity of building or hiring a separate office, this clerk might continue to work in the office of the Civil Surgeon.

The Civil Surgeon having been in this way relieved of duties which hitherto he has been supposed to perform, but to which, as is well known, he has not been able to devote the time and attention which they merit, would thus be in a position to devote more of his time and energies to the improvement of his hospitals and dispensaries, and to making more widely known the benefits of Western medical science. This scheme would incidentally relieve the Civil Surgeon of the incubus of a large amount of office work, which at present seriously interferes with the proper discharge of his professional duties. In times of epidemics or famine the advice of the Civil Surgeon should always be available for the district authorities. The district sanitary officer and the school medical officer, if these offices are not combined, should not be under the orders of the Civil Surgeon, but amicable co-operation is necessary between the two departments, in order that full benefits may accrue to Government and to the people. Until such time as district sanitary officers are provided, the provisions of G. O. no. 200/V—71 of September 21st, 1866, should remain in force. The Committee recommends that district sanitary officers should, in the first instance, be appointed to those districts in which the Civil Surgeons do not tour.

The Committee considers that in suggesting an agency for the sanitary inspection of schools and colleges, and for the medical inspection of school children through the medium of the district sanitary officer, it might be thought that it has gone somewhat outside of its province. It would however point out that in England, when sanitary and medical inspection of schools was first instituted, the duties of medical officer of health and school medical officer of an area were combined, as they still are in many cases where one officer can do the work of both. In view of the fact that the provision of a separate agency of school medical officers sufficiently qualified to undertake the duties of inspecting all or even a reasonable number of schools would involve a considerable, and perhaps scarcely justifiable, expenditure on this object alone, and that such officers might easily in addition to their school work undertake other sanitary work in the district, the appointment of the district sanitary officer, combining with this work the duties of school medical officer, suggests itself as a natural solution of the problem.

In this connection it may be remarked that under every section considered by the Committee the recommendations are only in the direction of amplifying agencies or systems which are already in existence, and that this suggestion is only an extension of the principle already initiated by Government of providing properly qualified district sanitary officers.

Cost.—Health officers of municipalities of the second grade are paid at the rate of Rs. 150 rising to Rs. 300 per mensem. If district sanitary officers with sanitary qualifications be appointed as school medical officers in addition to their district sanitary duties, the Committee would recommend a scale of salary of Rs. 200—20—400.

The duties of these officers would be heavy and would involve considerable responsibility. They would, in addition to their medical qualification, have to undergo at their own expense a special training in hygiene, as in the case of health officers of second grade municipalities. The initial pay of an assistant surgeon holding a similar medical qualification, if employed in charge of a dispensary, is Rs. 130 per mensem, under the recently sanctioned scale of pay. Such an assistant surgeon is provided with a free house, or house rent allowance, and is allowed to engage in private practice. Although in the main a touring officer who must spend much of his time in the district, the district sanitary officer would have to maintain a house at the district head quarters, at his own expense, for his family. The initial pay proposed would be only Rs. 10 per mensem more than is drawn by assistant surgeons on plague duty, viz. Rs. 130 *plus* Rs. 60 allowance, and the latter officers are not required to possess the special qualification in hygiene. The Committee is therefore of opinion that any scale of pay less than that proposed above would not attract suitable candidates.

The candidates for the posts of district sanitary officer should be selected by the Sanitary Commissioner for the special training in hygiene, and from the nature of the duties required of them they should be men of superior social standing and mental attainments. On a cadre of one per district, forty-eight men would be required, with an additional one as hygiene instructor as suggested later. Five extra men would also be required as an additional 10 per cent. to fill leave and sickness vacancies, making a total of fifty-four. The average monthly pay would cost, therefore, calculating on an average salary of Rs. 300 per mensem and an allowance of about Rs. 100 per mensem to each officer for travelling and office expenses, roughly 2½ lakhs a year. The King George Medical College at Lucknow can, however, only accommodate a maximum of eight such students at present; nineteen second grade municipalities require health officers; so far only three have been supplied. The scheme of appointing district sanitary officers trained at the King George Medical College could therefore only be very gradually introduced and the expenditure of 2½ lakhs per annum would be reached only after fifteen or twenty years, as the district sanitary officers would receive their maximum pay only after ten years' service. It will, at the present rate, take about nine years for the college to supply health officers to the remaining second grade municipalities, and district sanitary officers to all the districts. If this scheme is acceptable to Government, arrangements might be made to provide increased teaching accommodation at the King George Medical College, Lucknow, to ensure a larger annual outturn of trained men.

SECTION IV.—*Quininization of school children.*

The Committee has carefully considered the subject of prophylactic quininization of school children, and has had the advantage of first-hand evidence regarding the practical working of this scheme, and is of opinion that both its efficacy and its practicability have been proved beyond possibility of doubt.

Sickness due to malaria is one of the commonest causes of irregular school attendance during and after the rainy season. Quininization of school children, besides being most useful in counteracting this cause of absenteeism, has an educative value both to the scholar and to his home circle. The Committee recommends that the measure be made compulsory in the highly endemic districts, and optional in the case of districts where the incidence of malaria is known to be slight. Compulsory quininization should be applied, in the first instance, to government schools, it being left optional for the managers of aided and private schools to apply for its extension to them also.

The measure when introduced into new districts can be carried through successfully without outside help, and without dislocation of school work, provided it receives the sympathy and help of district staff and teachers. Though it may be necessary for some local authorities especially in eastern districts, to modify the application to suit changing malarial conditions arising each year, yet the maximum benefit to any one district will only be obtained from the measure by continuity of application from year to year.

Probably the soundest lines of advance in new areas are those which the special malaria officer laid down for the Budaun, Aligarh, and Meerut districts in 1911, with their subsequent modifications—vide extract from Major Graham's note on some locally-conducted quininization schemes in the United Provinces in 1912 (appendix C).

The system of partial or complete recovery of the cost of the quinine, while an excellent and desirable end to attain, is not ordinarily advisable in the first instance when the method is being introduced into new areas, but should certainly be attempted in the second year of issue.

The method, if made generally applicable, must be efficiently supervised to prevent leakage of quinine and slackness of distribution. If sub-assistant surgeons are employed in connection in this work they should be specially selected and placed under the district sanitary officers during the season in which they are employed. The Committee wishes to emphasize, however, that such sub-assistant surgeons should not be new and inexperienced men, but men of proved ability and of some standing. They should receive extra remuneration in consideration of the special and onerous nature of their work. A fixed travelling allowance for these officers is not recommended.

SECTION V.—*The effect of the curricula on the health of the scholars.*

From a consideration of this subject, and of the evidence adduced, the Committee is of opinion that in many cases the health of scholars is injuriously affected by overwork. The causes of overwork may be summarized under the following heads:—

(*a*) Working under unhygienic conditions, which tend to lower the mental as well as the physical powers.

(*b*) Unsystematic and irregular working throughout the session. One of the chief reasons for this is that teachers often do not insist on pupils working regularly from the commencement of the session, with the result that there is, of necessity, serious overwork and cramming for a few months prior to the annual examinations.

(*c*) Want of proper regulation of work during actual school hours, and undue length of continuous instruction, especially in the case of younger scholars.

(*d*) Undue length of hours of home work, necessitated largely by ineffective tuition during school hours.

Of the above causes of overwork the remedy for (*a*) has been dealt with in the early part of this report; for (*b*) the remedy lies with the educational authorities.

With regard to (*c*) the Committee would recommend the regulation and sub-division of school hours as detailed below. It is important in the construction of a school time-table that due consideration be given to the total duration of school hours, and to the capabilites of a child with regard to the duration of continuous study. The avoidance of fatigue should in both these respects be aimed at. Signs of fatigue result from too prolonged stimulation of the nerve centres and are manifested by failure or inability to concentrate attention, by listlessness and the adoption of careless attitudes, by yawning and drowsiness. The production of fatigue depends mainly upon two factors—the age of the child and the duration of study. With regard to schools in England, authorities are agreed that the time during which a child can fix its attention is very short. For example, a child of six can fix his attention for fifteen minutes; children from seven to ten for twenty minutes; from ten to twelve for twenty-five minutes; from twelve to sixteen for thirty minutes. It would be impracticable, and indeed, rather a counsel of perfection, to recommend the adoption of these periods as a standard, and in the opinion of the Committee longer periods are within the powers of the average Indian scholar. The Committee would therefore recommend for general adoption the following scheme for the duration and for the sub-divisions of school hours for both boys and girls:—

I.—*Preparatory sections A and B* should have a total of three hours' school work, divided into half-hour periods with five-minute intervals, and a half-hour play interval after the fourth period. This would mean a total of three hours and fifty minutes in school.

II.—*Lower primary sections I and II* should have a total of four hours, divided into half-hour periods, with five-minute intervals, and a half-hour play interval after the fourth period, making a total of five hours in school. If the school day be for any reason divided into morning and afternoon periods, the half-hour interval should be extended accordingly.

III.—*Upper primary sections III and IV* should have a total of 4½ hours' school. In these sections also, the Committee is strongly of opinion that the time should

be divided as above into half-hour periods with five-minute intervals whenever possible, and that there should be at least half an hour play interval after the sixth period. This provides for a total time of five hours and thirty-five minutes in school.

IV.—*Middle and high schools* should have five working hours. In these the time should be divided into six periods of not more than 50 minutes, with five-minute intervals, and a forty-minute interval, preferably after the fourth period. This provides for a total time of six hours in schools.

The five-minute intervals should in all cases be utilized for the thorough ventilation of class-rooms by throwing open all doors and windows. Head masters must impress the necessity for this on their staffs. No one should be allowed to remain in the class-rooms during these intervals. The Committee is of opinion that by allowing five-minute intervals between the periods above prescribed, the scholars are enabled to have a brief but sufficient relaxation, mental and physical, and are thereby better fitted to put their minds to work during the actual working periods. The better the quality of work during actual working hours the less will be the necessity for home lessons.

The Committee does not consider it necessary to make any recommendations in the way of the alteration of existing arrangements as to hours in colleges. With regard to the fourth cause of overwork, namely the undue length of hours of home work, the Committee has considered the subject-matter of the memorandum on home lessons issued under the authority of G. O. no. 790/XV—212, dated the 19th August 1910, Education department, and is in entire agreement with the opinions expressed therein, and is strongly of opinion that home lessons should be regulated in accordance with the instructions given in paragraph (2) *(a), (b)* of the memorandum, namely:—

Lower primary and preparatory sections	Nil.
Upper „	One hour.
Lower middle	1½ hours.
Upper „	2 „
High section	2 to 3 „

The Committee recognizes that there is no method of ensuring that these hours are observed, should it be the will of the parents or guardians that the scholars should do more home work than above prescribed. Masters can, however, be forbidden to give scholars more home work to do than can be got through reasonably in the times mentioned. Carefully regulated school work during school hours ought, to a very great extent, to result in reduction of home lessons, and the attention of teachers and inspecting officers might again be drawn to the provisions of the memorandum above referred to.

The private tutor is an unnecessary evil if school hours are properly utilized, and the Committee would emphasize the opinion with regard to his employment as expressed in paragraph 4 of the memorandum. Every means possible should be employed to combat the tendency to slackness in tuition during the actual school hours and cramming during the latter part of the school term. These tendencies are highly objectionable from both the hygienic and educational points of view, and would be largely obviated by a proper distribution of the work over the entire term.

The Committee does not feel itself justified in expressing an opinion as to whether existing curricula are too heavy or not. It, however, considers that if the above suggestions as to the manner of working be followed, it would probably be found that the curricula would not be too heavy.

Physical training should occupy an important position in school curricula in order that the physical powers as well as the mental faculties may be developed. Physical training, to be effective, must be regular and continuous. The common practice of devoting a period to this subject once or twice a week is futile.

Half an hour on each school day should be devoted to the prescribed drill and exercises in each class.

As the ancient *Hindi* maxim has it—

"Antare khontare kasrat kare.

"Dayu ne mare, ap-mare."

They should not be performed immediately before, or immediately after, taking a meal or participating in games, and should not therefore be carried out very soon after the assembling, or before the breaking up, of school, but rather at some intermediate time.

Physical exercises may be divided, according to their effect, into *nutritive, corrective,* and *control* exercises. *Nutritive* exercises stimulate circulation and respiration, and in consequence improve the nutrition of the entire body. Such exercises are those which call the muscles generally into play, and exercise the larger joints. *Corrective* exercises are those which prevent or remedy defects induced by school conditions, such as incorrect postures. Such exercises are those of "backward bending," "heel raising" and the like. *Control* exercises are those which are designed to control certain muscles or groups of muscles under the influence of the will. These are more easily learned by older than by younger scholars, and are from their nature more fatiguing than the simpler nutritive exercises, and call for greater accuracy in their performance.

Instruction in physical exercises should be given as far as possible in the open air, or, if weather conditions preclude this, in the largest room availabe, all doors and windows being open. Classes for this purpose should be small to ensure individual attention on the part of the teacher, and he should see that each scholar performs the exercises in the correct manner, and does not get into slovenly ways. All superfluous garments should be discarded during exercise. Clothing of the type of a 'banian' and football 'shorts' is recommended. Physical drill as at present taught, requires little apparatus, and is strongly recommended as tending to increase the physical well-being of the scholars. It is quite suitable for the lower classes of schools. In the higher sections however it is considered that some better organized system of physical exercises, such as the Müller system, is desirable and more suitable. This system comprises a carefully selected and graduated set of exercises, all of which are calculated to improve the physique of the scholars without undue strain being imposed on them, and to benefit their general health and mental faculties.

It is recommended that, with a view to the gradual introduction of this system into high and middle schools, the students of the training colleges and normal schools should be instructed therein while undergoing training.

The Committee is interested to learn from letter no. 1140 from the Joint Secretary to the Government of India, department of Education, dated Simla, the 24th June 1913, of the success attained by the Young Men's Christian Association in Bengal, in its scheme for the advancement of physical education in schools, and would welcome the introduction of such a system into the United Provinces.

Physical drill and exercises must not, however, be regarded as taking the place of organized games, but rather as auxiliaries to these.

The Committee has considered the question of the provision of gymnasia; but from the evidence adduced it appears that such gymnasia where provided are practically never made use of unless under compulsion, and compulsory gymnastics are not considered a form of exercise which, for the present, should be incorporated in the curricula. The Committee, however, is strongly in favour of organized games, such as cricket, football, hockey, rounders, &c., being encouraged in all schools in which the finances admit of the supply of the necessary apparatus. Miss H. G. Stuart, Chief Inspectress of Girls' schools, United Provinces, is of opinion that the present curriculum is too heavy for girls in the upper sections, and that the time allowed for the curriculum should in the case of girls be extended by a year. The Committee endorses this opinion.

Compulsory physical training is not recommended at present for girls in deference to Indian opinion, but teachers should personally encourage girls to play games during their recreation hours, and in higher schools such organized games as badminton, basket ball, tennis, &c., might be introduced with benefit. Such games should not at present be made compulsory. A great deal can be done by personal influence, and the introduction of physical training so desirable to promote the health of scholars may by these means be gradually attained. The

Committee agrees with Miss Stuart that the provision of swings in playgrounds ought to be undertaken by school authorities.

SECTION VI.—*Teaching of hygiene in schools.*

The provision of hygienic surroundings in schools is of the highest importance in the teaching of the elements of hygiene. It is of little use to teach dogmatically the advantages of clean and wholesome surroundings where such are not provided. The impressions of childhood are deep and lasting, and it is necessary therefore that they should be in all respects sound. Neatness, tidiness, cleanliness, freshness of atmosphere, punctuality, and orderliness in school, leave impressions on scholars which are likely to have lasting effects in their after-life. The hygienic conditions of the schools should, therefore, in all cases, be of a vastly higher standard than those to which the scholar is accustomed in his own home. Teachers also must show to their pupils that they practise what they preach, and that they themselves are tidy and clean in their person and clothing, punctual and orderly in their work, and of good moral character. They should in their own lives carry out the precepts of hygiene which they themselves have been taught.

The Committee has carefully considered the question of the teaching of hygiene in schools, and has arrived at the conclusion that the time has come to introduce into schools the subject of elementary hygiene in such a way that scholars may gradually be made acquainted with its principles, both personal and public, with special reference to their application to every-day life. The primary necessity is the teaching of the teachers, and the scheme which is outlined below has been drawn up in order to provide an agency for instructing the masters of the various grades of schools in hygiene to such a degree that they will be able to impart its elementary principles to their pupils. The Committee suggests, for the consideration of Government, that an assistant surgeon holding the same qualification in hygiene from the King Georges' Medical College, Lucknow, which is required for health officers of second class municipalities, or a qualification recognized as equivalent to this, should be deputed annually to lecture on hygiene in each of the training colleges and normal schools of the province, as is done at present biennially with regard to malaria by a qualified malaria officer. This instructor should be provided with the apparatus necessary to enable him to give object-lessons on the subject-matter. The teaching should be thoroughly practical, and should include, besides elementary physiology, as explained in section VIII, the following subjects, viz. water, air, and food, with reference to their purity and source; personal hygiene; the ventilation and sanitation of houses; public sanitation; and facts regarding the chief infectious diseases, their etiology and their prevention, both personal and public. The Committee recommends that a suitable text-book should be drawn up on these lines by the Sanitary department for the use of instructors and their pupils. Most of the pupils in the training colleges and normal schools subsequently become masters in high and middle schools, and these masters, having undergone the training in hygiene above referred to, will acquire a sufficient knowledge of the subject to enable them to impart its essentials to their pupils. Hygiene and physiology are already taught to some extent in the training colleges and normal schools in connection with school management, but the Committee thinks that the scope of such teaching is not of a sufficiently high standard, and that a trained sanitary officer would be required to instruct the pupils in the extended course proposed. The Committee also recommends that, if the district sanitary officers and school medical officers, who should have the same qualifications as the above-mentioned instructor, be appointed, they should, so far as is possible, be entrusted with the work of giving the same instruction in the training classes in the districts, the training classes in municipalities being taught by the health officer. Training classes in which the school medical officer could not lecture would have to be taught by their own instructor, who would himself have undergone training in the normal school. The school medical officer or district sanitary officer should also attend the various "Teachers' meetings," and give instruction in hygiene to the masters there assembled. The additional work entailed on the students in the training colleges, normal schools, and training classes would undoubtedly add slightly to the curriculum, but the two head masters of normal schools whom the Committee examined on the subject do not think that the proposed extension of the teaching of hygiene would render the curriculum excessive, while the pupils would have the advantage of expert teaching. The experience which these witnesses

have had in connection with similar teaching carried out on the subject of malaria by a malarial expert has led them to form the opinion that the course proposed would be a great advance on the present one.

The Committee has carefully considered the methods by which the subject of hygiene can be introduced into school curricula. It is axiomatic that the standard must be low, precludes its being set as a separate subject in the matriculation or school-leaving certificate examination, in which examinations also it is probable that the school, University and the Educational department would object to its introduction, while for the vernacular final examination, it is impossible at present to arrange for teaching up to a standard which would justify its inclusion as a compulsory subject. In all but the highest classes, that is in all classes except IX and X in Anglo-vernacular schools, and V and VI in vernacular schools, it is considered better that lessons on the various points be introduced into the readers, replacing if necessary matter already therein, than that a specific text-book be used. If only one text-book be used, selected chapters being studied in each class, the pupils would probably leave school remembering only the last lessons taught them, while those who do not complete the school course would not have that knowledge of the general broad outlines of the main principles of hygiene which it is intended should be taught in the early stages and amplified in the latter ones. If separate text-books are used for each class, the subject then becomes of too high a standard, and incidentally adds to the weight of the curriculum, and to the possibilities of overwork on the part of the scholars, which the course as proposed avoids; while if one small text-book be used in the highest classes only, it would, in all probability, be crammed up just before the examination and be therefore of less than no value. The lessons should, in all cases, be illustrated and amplified by the teachers with the aid of object-lessons, as far as practicable, from every-day experience. They should be drawn up by the Sanitary department and revised by the Educational department to ensure the language and construction used being suitable. The requisite course of lessons in elementary hygiene could be incorporated in about forty lessons, of which five might be included in the readers for class III, six in each of those for classes IV and V, seven in that for class VI, and eight each in those for classes VII and VIII. The Committee prefers to leave the Educational department to decide whether these lessons in the higher classes of Anglo-veruacular schools should be incorporated in the English or vernacular readers, or in both.

The Committee regrets that, while recognizing the admirable precepts taught in the Punjab primer on "*Life, Light, and Cleanliness*" and the advantages to pupils of the study of such a book, it cannot see its way to recommend the introduction of this or any similar primer into the school course. It would advocate the placing of a suitable number of copies of this book in all school libraries, and the encouragement of its study. It would also suggest its use as an unseen reader in the highest classes of Anglo-vernacular schools, and, if translated into the vernacular, in classes V and VI of vernacular schools also.

Lessons on hygiene are already incorporated in the readers, and the suggestions of the Committee are in the direction of the amplification of these, and of ensuring the suitability of the lessons with regard to the mental capacity of the pupils reading them.

To ensure scholars paying a proper amount of attention to the lessons on hygiene, the Committee recommends that at least one question on the subject-matter of the lessons be included in every examination. Gross ignorance of the subject should necessitate a scholar being rejected for promotion from class to class. The special attention of all inspecting officers might be called to this point. Lessons in hygiene should not be incorporated in the readers for children below class III, as it is considered that it would be useless to teach hygiene to infants.

With regard to the short course of object-lessons on mosquitoes, by Major Harriss, I.M.S., the Committee is of opinion that the scope of these lessons is much too advanced for incorporation in primers, and that its introduction would lead to the exclusion of more elementary and essential matter of a nature more suitable for introduction as hygiene lessons. The official leaflets on malaria in Urdu and Nagri along with the official posters should, however, be framed and hung up in all schools. Lessons on malaria would naturally form part of the subject-matter of the hygiene lessons to be incorporated in the primers.

The Committee has read and considered letter no. 1140, from the Joint Secretary to the Government of India, department of Education, dated Simla, the 24th June 1913, together with its enclosed correspondence, between the Government of India and Honorary Secretary of the Executive Committee, St. John's Ambulance Association, Indian branch. It is of opinion that the teaching of hygiene in schools is amply provided for by the method it has suggested, which provides a thoroughly workable agency. The Committee thinks that the introduction of an outside agency such as the St. John's Ambulance Association would not provide the standard of teaching which is desirable for the students in training colleges, normal schools, and training classes, and it would obviously be impossible for that or any similar association to attempt the direct teaching of scholars in all schools. It also thinks that the primers of that association are not suitable for the purpose. With regard however to the objects of the association in disseminating knowledge in home hygiene, first aid, and other kindred subjects, the Committee sees no objection to the association instituting in high schools and colleges courses of instruction in these subjects, provided that these be voluntary, and do not entail excessive work on the scholars.

SECTION VII.—*Personal hygiene of scholars.*

The elementary principles of personal hygiene should be incorporated in the lessons in the readers as above recommended. In addition to this, masters should be held personally responsible for inculcating the principles of bodily cleanliness in their scholars both by precept and example. Pupils coming to school in a dirty condition should be excluded therefrom, and not re-admitted until they are clean. With regard to personal habits, the following points require particular attention :—

(1) A government circular has been issued dealing with, the prohibition of spitting in public buildings. It is strongly recommended that scholars should be taught to regard the habit as equally objectionable in their homes and in public places as it is in school. They further recommend that a notice prohibiting spitting should be hung up in every class-room and in every room in every hostel.

(2) *Smoking.*—In this connection the Committee strongly endorses circular no. 1 of 1907, from the Director of Public Instruction, United Provinces, to inspectors of schools, United Provinces, and recommends that all masters of schools should enforce the terms of the circular in schools and boarding-houses, and that they should frequently explain to the scholars the evils which arise from indulgence in smoking at an early age. Boys habitually addicted to this habit should be expelled from school. The Committee would also recommend that all masters should explain to their scholars the injurious effects of such drugs as opium, cocaine, Indian hemp in its various forms, and alcohol.

(3) The sale of sweetmeats by the *khonchawala* should be carefully supervised. His wares are generally cooked in bad oil, and contain an excess of stimulating ingredients which are detrimental to the health of the pupils. Such should be strictly prohibited. There is no objection, however, to the sale of wholesome sweets to scholars by persons licensed for the purpose. Masters should be responsible for seeing that such licensed persons sell only wholesome and clean food, which should be carried in clean and covered utensils. The sale of aerated waters should likewise be supervised.

(4) The Committee, while recognizing the difficulties with which this problem bristles, would, however, like to call attention to the ill-effects of the system of early marriage. The mixture of married and unmarried boys in schools is to be deprecated. The Committee would recommend the gradual exclusion of married boys from all schools below classes IX and X.

(5) It is notorious that self-abuse is regrettably prevalent in schools. The educational authorities should use every effort in their power to eradicate this habit, which is more than any other detrimental to the mental and physical well-being of the scholars. It is well-known that games and physical exercises tend largely to counteract tendencies in this direction. In this connection the sale of pornographic literature to scholars and its use by them should be sternly repressed. Transgression in this particular should justify expulsion from the school.

(6) With regard to corporal punishment, such methods as striking scholars on the head or face are deprecated. Only regularized corporal punishments should be permitted. Excessive

detention as a form of punishment, or the excessive imposition of home tasks, should be discouraged.

(7) Wherever financial conditions permit, and especially if the water of available rivers and tanks is not good, swimming baths, with clean water, should be provided.

SECTION VIII.—*European schools.*

Superficial space.—In the main, the principles laid down with regard to the hygienic requirements of class-rooms, playgrounds, and school surroundings, for schools in general, apply to European schools both in the plains and the hills. Owing to the universal use of desks in European schools it is necessary, in the Committee's opinion, to increase the floor area per scholar to 15 square feet where only one class is held in a room, and 20 square feet where more than one class is taught in the same room, while 30 square feet should be allowed in the case of kindergarten classes. This opinion is supported by that of Mr. J. Murray, Inspector of European schools—vide appendix D.

In dormitories, the Educational department endeavours to secure a provision of not less than 40 square feet and 400 cubic feet for each child under twelve years of age, and not less than 48 square feet and 480 cubic feet for each child above twelve. These figures fall far short of the ideal, which, certainly for older children, should approach 1,000 cubic feet per child, necessitating about 84 square feet of floor space; for younger children the figures might be 600 cubic feet and 50 square feet. It is impossible, however, to provide such space, and a practicable scale has to be laid down.

Plains schools require greater space than hill schools, for obvious reasons. The Committee would therefore suggest the following scale, which should be worked up to in existing schools and insisted upon in new schools :—

Hill schools.—For scholars over twelve years of age, 60 square feet and 720 cubic feet.
For scholars under twelve years of age, 50 square feet and 600 cubic feet.

Plains schools.—For scholars over twelve years of age, 70 square feet and 840 cubic feet.
For scholars under twelve years of age, 60 square feet and 720 cubic feet.

N.B.—Dormitories should be at least 15 feet high, but in making calculations of air space all heights over twelve feet should be disregarded.

Ventilation.—In European schools natural ventilation by means of open doors and windows is usually secured, and the teachers are alive to the necessity of this. Many class-rooms and dormitories are, however, not provided with clerestory windows. Efforts should be made to have these provided, and to see that they are used for ventilating purposes.

Water-supply.—In both plains and hill schools, where connection can be made with a municipal filtered water-supply, such should be insisted upon for drinking and cooking purposes. Schools which cannot obtain this must depend upon well water, and in such cases the recommendations of the Committee with regard to well water-supply should apply. Water should be stored only in impervious containers, and not in earthen chatties or *ghurrahs*. In all cases where the well water is not periodically declared by competent analytical authority to be bacteriologically as well as chemically fit for drinking purposes, the water should be boiled and cooled before use. During the prevalence of cholera, enteric fever, diarrhœa, and dysentery, well water used for drinking and culinary purposes should invariably be boiled.

Latrine and urinal accommodation.—Wherever a sewerage system exists and a suitable water-supply is available, modern water-flushed closets and urinals should be provided. Failing this, the commode system, with a sufficient sweeper staff, is the most suitable for European schools in India, all night-soil and urine being collected in suitable covered buckets for removal by municipal agency. Trough closets are not recommended.

All closets should be separated from one another by partition walls, and should be provided with doors, extending to within 3 inches of the floor and 6 inches of the top of the doorway. The floors should be of cement, Indian patent stone, or other impervious material capable of being readily washed out. The number of seats necessary is one for every twenty-five boys, one for every twenty infants, and one for every fifteen girls. Besides these, in the case of boys' schools one urinal for every twenty boys should be provided. All urinals should be connected with a water-flush system wherever possible, and in all cases should take the form of a channel

of impervious material, such as a half-pipe of glazed stone or earthenware, forming a gutter, sloped to an outlet pipe discharging into a container at the back of the urinal compartments. The urinals should, like the closets, have impervious floors and suitable partitions. Latrines and urinals, unless of modern sanitary water-flushed and sewer-connected type, should never be included in the main school-buildings, but should be built separately and at a distance of not less than 20 feet from the main building, to which they should be connected by a covered way allowing of cross ventilation. If water-flushed modern closets and urinals are installed, they may be permitted in the main building if placed against an external wall, and cut off from direct communication by a passage, cross ventilated, the closets and urinal compartments being themselves also ventilated through the external wall. Separate latrines must be provided in mixed schools for boys and girls, and should be approached by separate corridors or passages.

Besides the general latrines and urinals a set should be provided for night use, and should, like the others, be approached by a covered way with cross ventilation. The number of seats and urinals required for this purpose is one seat and two urinals for every 100 boys or fraction thereof, and four closet compartments for every 100 girls.

Physical exercises.—For boys' schools the Committee is of opinion that regular drill and physical exercises, in addition to organized games, should form part of the school curriculum. Managers of schools are alive to the necessity of this, and in most schools satisfactory arrangements are made for physical training. The system of Swedish drill used in the British Army—vide Army Manual of Physical Training, 1908,—commends itself as being eminently suited for boys, and is already in use in several schools. It provides a graduated system of exercises, and in most places where European boys' schools exist, a qualified soldier instructor can be secured.

Gymnastics will naturally form part of the physical training, especially for boys in the upper school.

In girls' schools, in addition to physical exercises, more attention should be paid to games such as skipping, lawn tennis, basket ball, lacrosse, rounders, and the like.

Teaching of hygiene.—Hygiene may be defined as a knowledge of external conditions likely to injure health, and the methods rendering them harmless—or, shortly, as the science of preventing disease. While a knowledge of the laws of health is eminently desirable, full advantage can only be taken of their teaching if, as a preliminary to their study, something is known of the functions of the body and the structure of the organs which hygiene teaches us to protect from adverse external conditions. The groundwork, therefore, of hygiene is a knowledge of physiology, without which the subject cannot be properly understood, while its teaching must be greatly limited. The necessity of physiology as a preliminary to the study of hygiene has been recognized by educational authorities in Western countries, where school examinations in hygiene always include these. The Principal of the Training college at Allahabad, writing to the President of the Committee on the subject of the hygiene syllabus taught in the college, remarks: "We do not think it possible to give students who are ignorant of the elements of physiology an intelligent knowledge of hygiene. We accordingly teach Murche's *Animal Physiology* as a base for the hygiene course." (This book, it may be noted, though entitled *Animal Physiology*, treats of human physiology.) The University of Cambridge in its junior and senior local examinations likewise treats the two subjects as forming one section. Physiology is taught at present in European schools in these provinces, but so far hygiene, except for some informal teaching of some of the points of personal hygiene, has been neglected. In view of the importance of the subject to the domiciled European and Anglo-Indian communities in India, and of the extremely unhygienic conditions under which many of them live, the Committee is strongly of opinion that hygiene prefaced by tuition in elementary physiology should be made subject of tuition and examination in European schools, and that a pass should be required in these subjects.

In these schools the difficulties which caused the Committee to advocate the teaching of the subject in vernacular and Anglo-vernacular schools by the introduction of lessons into readers, rather than by the use of specific text-books, do not exist.

The Committee understands that there is some probability of the present European middle and high school examinations being replaced by the Cambridge junior and senior Local

examinations. The latter are, as a matter of fact, even now permissive for pupils in European schools in these provinces, as well as in the Punjab, while in Bengal and Bombay they have entirely replaced examinations held by the Educational department.

The methods of examination in the combined subject of physiology and hygiene may therefore be discussed under two heads:—

A.—If the present system of departmental examinations remains in force.

B.—If the departmental examinations are replaced by the Cambridge University junior and Senior local examinations.

A.—In the case of departmental examinations, the combined subjects of physiology and hygiene should be included in the middle school examination, and be of a standard equal to that required for the Cambridge junior local examination. In view of the fact that the subjects would be compulsory, the Committee considers that candidates should be afforded facilities for passing in it, and would suggest that, in addition to the ordinary examination in physiology and hygiene which would be held along with, and as part of, every middle school examination, a special examination in these subjects should be held about six months later, candidates being permitted to take these subjects either with or after the regular middle school examination as they might desire, the only condition being that a pass in them be obtained before they be allowed to appear in the high school examination. At this intermediate examination, candidates who have failed to qualify in these subjects would have the opportunity of again appearing.

B.—The Cambridge local examinations are hold twice a year. The standard in physiology and hygiene for the senior examination is unnecessarily high, and the course of study too heavy for compulsory introduction into the school curriculum. This is not so, however, with regard to the course of study and the standard of examination in the junior examination. If these subjects, which form one section, be introduced into the junior examination, scholars who have passed in them would then be free to devote themselves to preparation for the final senior examination. The Committee would recommend that this section be made a compulsory one for all candidates taking the junior examination, and that a pass in it be insisted on, and be made a condition for sitting for the senior examination. This condition could be secured by Government instructing the Inspector of European schools to refuse to forward applications to sit for the senior examination, from candidates who may not have passed in physiology and hygiene in the junior examination. For the benefit of those candidates who have already appeared for the latter examination, but who have not qualified in these subjects, whether or not they may have obtained a certificate of having passed the junior examinations by means of other sections, the Cambridge University Local Examination Syndicate might be ready to agree to furnish additional examination papers in this section alone, to be set for these candidates at subsequent examinations. The text-books prescribed for the Cambridge junior local examination in physiology and hygiene are Foster's *Primer of Physiology* with Foster's and Shore's *Physiology for Beginners*, or similar elementary books, and Reynolds's *Primer of Hygiene*. Of these, Foster's and Shore's *Physiology for Beginners* is already in use in European schools. Reynolds's *Primer of Hygiene* might be replaced by a small book on elementary hygiene written especially for students in schools and colleges in India, such as Bedford's *Elementary Hygiene*. The 1906 (second) edition of this book however is, in many respects, out of date. In a suitably revised edition it might, with the permission of the Cambridge Local Examination Syndicate, as provided for in the regulations for the local examinations, be prescribed as the text-book on elementary hygiene, together with the books on physiology above mentioned, for either the European middle school or Cambridge junior local examination. Until such time as a suitable edition of Bedford's or some equally suitable book be available, Reynolds's *Primer of Hygiene* should be prescribed for both examinations.

Experience has shown that there has been no difficulty in the past in teaching physiology which, it may be remarked, is a harder subject than hygiene alone, by members of the normal teaching staff in European schools. The addition of hygiene would therefore entail no difficulties.

Personal hygiene.—The Committee is satisfied that due attention is paid to the personal hygiene of the scholars, and that the importance of cleanliness and regular habits is duly

brought to their notice. The difficulty however of obtaining a sufficient water-supply, especially in hill schools, renders a daily bath impossible. On the plains there ought to be little or no difficulty in this matter, and the Committee would urge the advisability of this being brought to the notice of school managers. In cold weather tepid baths should be provided for girls and young or weakly children for whom a cold bath may be inadvisable.

In this connection the Committee would urge the provision of swimming baths in connection with European schools on the plains.

At hill stations specially, pressure should be brought to bear on the municipalities, in the interests of schoolboys, as well as of the general public, to take steps to ensure that sweetmeats, which are largely purchased by school children, are manufactured from pure ingredients and in clean and hygienic surroundings. Principals of schools should do everything in their power to discourage the consumption of bazar sweetmeats by their scholars. In Naini Tal, the municipal authorities should forbid the hawking of sweetmeats on the "Flats" during football and hockey matches, which are attended by large numbers of schoolboys.

Medical inspection of scholars and sanitary inspection of school premises.—As a rule the medical officers of European schools are themselves Europeans, and it might lead to friction if in such schools the health officer undertook the medical examination of the school children. It would be better if such examination and sanitary inspection were carried out by the medical officer already employed by the school, whether he be the Civil Surgeon or other equally qualified medical man. The Committee would recommend the payment of an allowance to the school medical officer for this duty, and would suggest that such allowance should be calculated as follows :—

For each sanitary inspection and report, Rs. 16.
„ medical „ of a scholar, „ 4.

These rates are in accordance with those paid to Civil Surgeons for the inspection of factories under the Indian Factories Act of 1891, and for the medical examination of candidates for the Police Training School, Moradabad, and the Agricultural College, Cawnpore. When these duties are performed by a school medical officer holding Indian qualifications half the above rates should be allowed.

Scholars should be medically examined at the commencement and close of their school career, and at an intermediate period, as is done in the case of school children in England. Annual medical examination of these scholars is not considered so necessary as that of Indian scholars; but, on the other hand, since these schools are almost entirely boarding schools, and since these scholars are particularly liable to enteric fever and other diseases arising from insanitary conditions, the sanitary inspections of the school premises should be made at least three times a year.

The sanitary inspection form and medical history card already prescribed should be used, and similary disposed of.

Instruction in First Aid.—The Committee notes with interest and approval the extent to which the Volunteer and Boy Scout movements have developed in European schools for boys, and is glad to learn that, in connection with these provision has been made for the teaching of First Aid. It would suggest that, where arrangements have not already been made with the St. John's Ambulance Association for the examination and grant of certificates to efficient pupils, steps in this direction might be taken. Instruction in First Aid, and examination and grant of certificates by the St. John's Ambulance Association might likewise be arranged for in connection with girls' schools.

Hospital accommodation.—Every boarding school should be provided with hospital accommodation, which should be utilized in all cases of sickness requiring confinement to bed. Such cases should not be treated in dormitories occupied by healthy scholars. The school hospital should, wherever possible, be separate from the school and dormitory buildings. In it accommodation should be provided for 5 per cent. of boarders in plains schools, and 3 per cent. in hill schools with a minimum of two beds. Apart from this and separated both from the main buildings and from the general hospital building, but connected with the latter by a covered way with cross ventilation, there should be an isolation ward or wards for suspected infectious cases. Beds to the extent of 2 per cent., with a minimum of two beds, should be provided, in separate rooms.

SECTION VIII.—*Factory schools.*

Under the provisions of the Indian Factories Act of 1911 no children are allowed to be employed in factories under the age of nine. They may not be employed for more than seven hours a day. As a rule these children, many of whom are sons and daughters of factory workers, receive no education whatever before they begin to earn their livelihood, and when they obtain employment in factories their opportunities for study are generally at an end. The factories in which they work are often at a distance from their homes, and after their day's work is over, these children are turned out into the streets, to play or idle away their time till their parents go home, or else to loiter slowly home, often through the bazars with their attendant evils, or if their working day is divided into two portions, they are turned out of the factory premises during the interval. Under such circumstances there appears to be a serious need for factory schools, which, while imparting useful knowledge to the children, will not only make them better factory hands but also tend to make them more useful members of society.

The only important school of this description in these provinces known to the Committee is that managed by Messrs. Cooper, Allen & Co., Limited, Cawnpore, a note from whom is appended (vide appendix E). A reference thereto will show that, in their opinion, children who have recived education in their school make much better workers, and that money so spent is, from a purely commercial point of view, a sound investment. It is strongly recommended that the example of Messrs. Cooper, Allen & Co., who have constructed an excellent new school, with good sanitary arrangements and providing accommodation on a higher scale than that prescribed in this report, should be encouraged and aided, as far as is possible, from public revenues.

With regard to the teaching of hygiene to scholars in factory schools, only those using the readers prescribed for class III upwards would obtain the benefit of the teaching suggested by the Committee, and this only to any useful extent if they remained in the school for a sufficiently long period, and if the teachers themselves understood the subject. As these schools would not be working for any specific examination, there would be no reason why an elementary primary on hygienic topics, such as *"Life, Light, and Cleanliness,"* should not be used by the more advanced pupils, and the Committee would strongly urge the introduction of this book into factory schools and any other schools whose curriculum is not framed with a veiw to set examinations.

Personal hygiene should receive the same attention in these as in other schools. Physical exercises should form an essential part of factory school education, especially in view of the indoor confinement entailed by factory duties. The Committee considers *desi kasrat,* or the form of physical drill prescribed for government schools* suitable for boys of this class. Half an hour daily should be spent by scholars on these exercises.

The Committee does not consider it necessary to suggest the extension of the system of medical examination of scholars and of the sanitary inspection of school premises to factory schools. The former is unnecessary as all juveniles are now examined sufficiently by the certifying surgeons under the Act prior to employment, and the latter is within the jurisdiction of the factory inspector.

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* *Urdu Physical Drill* by Kempster and Kaye, published by MacMillan & Co, Calcutta, Bombay, and London.

APPENDIX B.

Extract from notes on some locally conducted quininization schemes in the United Provinces in 1912 *by* MAJOR J. D. GRAHAM, M.B., D.T.M., I.M.S., *Special Malaria Officer.*

MEERUT.

This district . . . has all along shown a desire to perfect its methods for rapid quinine distribution, and its 1912 scheme of prophylaxis was the best that has been attempted locally in regard to the character and general arrangements of the distribution, the accuracy of recording the development of the principle of part payment, and the extension to ministerial servants of Government.

Preliminary arrangements.—The district board arranged to prophylax 100* schools with 5,392 scholars and 217 teachers, the majority of the schools being specially selected in the most malarial tracts and allocated to the different tahsils as follows :—

Meerut.	Hapur.	Ghaziabad.	Sardhana.	Mawana.	Bhagpat.
13	13	15	15	19	24

Dosage was, as described, by issue to the masters of an age scale—vide appendices I and II†—which they used automatically for fixing the dose and entering it on a specially issued register—vide appendix II.† These registers were sent into the sadr by all teachers for checking purposes, and returned to the schools before August 1st. In this way dosage and other discrepancies were rectified before August 1st. In June a notice of the district board's scheme had been sent to all masters concerned, and ten masters reported guardians who were conscientious objectors. These were seen by deputy and sub-deputy inspectors and convinced, so that on August 1st, when the scheme started, there was no hitch anywhere.

Quinine was given in the tablet form as previously, the amount varying between 10 and 20 grains weekly, and half doses were recommended for non-malarial tracts. Mondays and Thursdays from August 1st till October 31st were the dates of issue.

During *Ramzan* the doses were made over to the scholars to take at their homes after food. Deputy and sub-deputy inspectors inspected all schools on the quinine register and reported that the administration of the dosage was regular, and the people, especially those in the malarial tracts, welcomed it. The district board secretary says "that during his cold weather tour he found that the boys and their parents did not resent its use, though yet there are people in isolated places who have objections to its use, which are quickly dying out"

Realization of cost.—Two hundred and seventeen teachers and 606 poor scholars were not charged, while 4,756 scholars paid two annas per head. The scheme cost the board Rs. 1,944-7-3, i.e. five annas seven pies per head on the register. Of this Rs. 1,070-4-6 was recovered in quinine fees, leaving a net expenditure by the board of Rs. 874-2-9.

Further development.—In pursuance of resolution 1 of the Provincial Malaria Committee meeting, dated September 20th, 1911, on the initiative of the district magistrate, all officials of tahsils, district municipal and notified area committees, received prophylatic issue. This was mainly an educative measure owing to the comparative mildness of the season. The issue was made in the presence of their superiors, and was generally reported as popular, except in Hapur and Meerut municipalities, where marked absence of severe malaria would be expected to blind employés to an adequate appreciation of the value of quinine.

One thousand five hundred and seventy-nine tahsili officials were prophylaxed at a cost of Rs. 526-5-4 or five annas four pies per head, all of which was recovered. The cost of the other came to Rs. 452-10-5 or five annas eleven pies per head, and this was recovered by the district board from the boards concerned.

* One school was omitted through a subordinate's mistake.

† See following pages for these appendices.

APPENDIX I.

QUININE DOSAGE.

Weekly doses.

Boys of	6	years	10	grains,	5	grains on Mondays and Thursdays.
,,	7	,, ...	11	,,	6	,, ,, 5 on Thursdays.
,,	8	,, ...	12	,,	6	,, ,, Thursdays.
,,	9	,, ...	12	,,	6	,, ,, ,,
,,	10	,, ...	12	,,	6	,, ,, ,,
,,	11	,, ...	13	,,	7	,, ,, 6 on Thursdays.
,,	12	,, ...	14	,,	7	,, ,, Thursdays.
,,	13	,, ...	14	,,	7	,, ,, ,,
,,	14	,, ...	14	,,	7	,, ,, ,,
,,	15	,, ...	15	,,	8	,, ,, 7 on Thursdays.
,,	16	,, ...	16	,,	8	,, ,, Thursdays.
,,	17	,, ...	17	,,	9	,, ,, 8 on Thursdays.
,,	18	,, ...	18	,,	9	,, ,, Thursdays.
,,	19	,, ...	19	,,	10	,, ,, 9 on Thursdays.
,,	20	,, ...	20	,,	10	,, ,, Thursdays.

Officials.

Between 20 and 45 years ... 20 grains a week, 10 on Mondays and Thursdays.
, 45 ,, 60 ,, ... 16 ,, 8 ,, ,,
(This appears in Urdu on the front of the Meerut quinine register—vide appendix II.)

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REGISTER OF QUININE.

رجسٹر کونین

ھدایت دربارہ مقدار خوراک کونین

برائے طلباء

عمر		ہفتہ وار خوراک	بروز دوشنبہ	بروز پنجشنبہ
۶ برس کے لڑکے کے لیئے	...	۹ گرین	۵ گرین	۴ گرین
۷ ایضا	...	۱۰ ″	۵ ″	۵ ″
۸ ایضا	...	۱۱ ″	۶ ″	۵ ″
۹ ایضا	...	۱۲ ″	۶ ″	۶ ″
۱۰ ایضا	...	۱۲ ″	۶ ″	۶ ″
۱۱ ایضا	...	۱۳ ″	۷ ″	۶ ″
۱۲ ایضا	...	۱۴ ″	۷ ″	۷ ″
۱۳ ایضا	...	۱۴ ″	۷ ″	۷ ″
۱۴ ایضا	...	۱۴ ″	۷ ″	۷ ″
۱۵ ایضا	...	۱۵ ″	۸ ″	۷ ″
۱۶ ایضا	...	۱۶ ″	۸ ″	۸ ″
۱۷ ایضا	...	۱۷ ″	۹ ″	۸ ″
۱۸ ایضا	...	۱۸ ″	۹ ″	۹ ″
۱۹ ایضا	...	۱۹ ″	۱۰ ″	۹ ″
۲۰ ایضا	...	۲۰ ″	۱۰ ″	۱۰ ″

برائے اہلکاران

عمر		ہفتہ وار خوراک	بروز دوشنبہ	بروز پنجشنبہ
۲۰ لغایت ۴۵ سال	...	۲۰ گرین	۱۰ گرین	۱۰ گرین
(اگر جاڑا بخار کثرت سے پھیل رہا ہو تو)		۳۰ ″	۱۵ ″	۱۵ ″
۴۵ لغایت ۶۰ سال	...	۱۶ ″	۸ ″	۸ ″
(اگر جاڑا بخار کثرت سے پھیل رہا ہو تو)		۲۰ ″	۱۰ ″	۱۰ ″

Register of Quinine given to Officials / Scholars in the

رجسٹر بابت کھلانے کونین اہلکاران / طلبہ بابت سال سنہ ۱۹ع

Office or Class. نام دفتر یا جماعت	Name of Scholar or Official with designation. نام طالب علم یا اہلکار بقید عہدہ	Age. عمر موجودہ	Weekly doses. خوراک هفته	Spleen. تلی	Date of doses. تواریخ خوراک

APPENDIX C.

Scholar's Medical History Card.

Register no.———— Scholar's name————————————

Father's name————————————

Caste————————————

Residence————————————

Date of birth ————————————

„ admission to school————————————

„ primary vaccination————————————

„ re-vaccination (1)————————————

(2)————————————

Name of school ...			
Date of inspection ...			
Physical development and state of nutrition.			
Mental condition ...			
Cleanliness and condition of clothing.			
Cleanliness and condition of scalp and skin.			
Eye diseases ...			
Vision			
Ear diseases ...			
Hearing			
Speech			
Heart and circulation ...			
Tuberculosis ...			
Infectious and contagious diseases.			
Malaria— Acute ... ... Chronic			
Other diseases ...			
General remarks ...			
Medical officer's signature.			

Name of school ...						
Date of inspection ...						
Physical development and state of nutrition.						
Mental condition ...						
Cleanliness and condition of clothing.						
Cleanliness and condition of scalp and skin.						
Eye diseases ...						
Vision						
Ear diseases						
Hearing						
Speech						
Heart and circulation ...						
Tuberculosis ...						
Infectious and contagious diseases.						
Malaria— Acute ... ... Chronic						
Other diseases ...						
General remarks ...						
Medical officer's signature						

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APPENDIX D.

Memorandum on the work of European schools, United Provinces, from the hygienic point of view, prepared at the request of LIEUTENANT-COLONEL YOUNG, I.M.S., *President of the Committee on Hygiene in connection with schools and colleges sitting in Naini Tal in June and July* 1913.

1. One of the conditions of recognition of European schools in the United Provinces by the Education department is "that due provision is made for the instruction, *health recreation* and discipline of the pupils" (article 3 of the Code of Regulations for European schools, 1905). The precise scope of the departmental enquiry preliminary to the recognition of a European school may be considered as further indicated by the conditions laid down in article 31 of the same Code for such recognized schools as are aided by Government.

2. Article 31 of the Code of Regulations for European schools states that grants are continued to such schools only as satisfy the following conditions:—

* * * * * * * *

(b) that the school premises are properly drained and healthy in other respects; that the buildings are well constructed and safe; that the rooms are properly lighted, ventilated and (if need be) warmed, and that they are, as far as possible, well arranged for teaching; that in the case of boarding schools proper arrangements are made for boarders; that the school is provided with all necessary offices, and that these and the premises generally are kept clean; that it contains sufficient accommodation for the scholars attending the school.

* * * * * * * *

(d) that efficient provision is made for physical training, which shall, in boys' schools, fit pupils to join a cadet corps.

It is noted in connection with *(b)* above (1) that the inspector may call upon the civil surgeon to furnish him with a report upon the sanitary arrangements of the school; (2) that rooms for teaching purposes should provide 12 square feet per scholar in average daily attendance, in cases where only one class is taught, and 16 square feet per scholar where more classes than one are taught, in the same room; (3) that the sleeping space allotted to each boarder must be declared by competent medical authority to be sufficient for the purposes of health, and in connection with this it is stated that in administering this article the department will endeavour to secure a provision for each child under twelve of not less than 40 superficial feet and 400 cubic feet, and for each child above twelve of not less than 48 superficial feet and 480 cubic feet.

3. As regards floor space per pupil in average attendance in class rooms, the above regulations have been fully carried out. In no European school in these provinces, indeed, is the actual floor space in a class room so low as the limits indicated. I know of only one case where the limit of 16 square feet was approximately worked down to, and with more classes than one in the room this limit was found too low. More space per pupil was accordingly arranged for. In one or two cases, but in only one or two, have I found the floor space per pupil so low as 16 square feet but only one class in the room, and even then the room was rather more crowded than desirable. In general, I am of opinion that the floor space per pupil in class is well over 16 square feet in every case, i.e. whether one, or more than one, class is taken in the same room. Experience would therefore seem to show that the limits laid down in the Code are rather low and might be raised with advantage to, say, 16 square feet in cases where only one class is taken in a room, and to 20 square feet in cases where more classes than one are taken in the same room at the same time. Ample space is particularly necessary for kindergarten classes, where, in addition to the usual space required for work done at desks or tables, space is also required for kindergarten games and similar occupation. Probably 25 to 30 square feet per pupil in average attendance in a kindergarten class would not be found excessive. As a matter of fact, the limits suggested are probably very little different from the actuals in a large number of European schools, and any such alteration of limits would but serve to confirm present arrangements.

4. As to dormitory accommodation, while the limits indicated in the Code are probably seldom or never worked down to in boarding schools for Europeans in the plains, they are not infrequently approached in such schools in the hills. In the latter, day pupils seldom or never exceed 10 per cent. of the enrolment, and in a large number of cases the total number of day pupils is insignificant. In all plains schools and in every hill school, with possibly one or two exceptions (I can think of only one exception at the present moment), the class room accommodation is in excess of the boarding accommodation. When numbers increase, therefore, it is in the boarding side that pressure is first felt, and it is the boarding accommodation that in almost every case determines the enrolment of the school. At the same time the limits for boarding space per pupil are generally observed—it is the duty of the inspector to see that they are observed,—and if occasionally the boarding space per pupil is reduced a very little below the prescribed minimum, it is seldom kept below the minimum for long. Even in cases where slightly excessive numbers of boarders have been admitted, I have to admit that little or no evil effects have been apparent. Such cases have occurred only in hill schools, and in all such cases I have found the ventilation and arrangements generally quite sufficiently good to neutralize the ill-effects of the slight overcrowding that may have existed. On the whole, I am inclined to think that the limits for boarders at present prescribed have been found quite suitable. They have never, so far as I know, been worked down to in boarding schools for Europeans in the plains, and I am consequently unable to say from personal knowledge whether they would, or would not, be found too low if they were worked down to. Possibly they might be so found, for often in the plains nights are very still and ventilation might present difficulties. In the hills, however, where there is usually some wind at nights, and where the lower temperatures doubtless help, I can say that the limits prescribed have been found quite sufficiently high. For neither plains schools nor hill schools, therefore, would I recommend any change. No plains school is expected to have to work down to the limit prescribed, and even if it did have to approach the limit and found the limit too low, it could, as is often done in plains boarding schools in the hot weather for reasons unconnected with the point in question, make use of verandahs and the like. As to hill schools, although the prescribed limits have not infrequently been approached, or even slightly exceeded upon occasion, the general conditions are so good that no ill-effects ensue. I therefore recommend no change for any schools, hills or plains.

5. As to sanitary arrangements, they may be considered on the whole fairly satisfactory in European schools in these provinces. The methods of disposal of night-soil are in practically every case the same as are employed in private houses, i.e. human agency is employed, but it may be remarked that in some boys' schools the arrangements are of a less elaborate nature than in others or than in any girls' school. In no case is a flush system of drains employed, with the possible exception of the large East Indian Railway school at Jharipani, near Mussooree (about which I am not at present quite sure); water-supply in every case doubtless presents enormous difficulties, whether on the score of expense or of availability. Such a scheme was considered in connection with the European schools in Naini Tal, but both the recurring and the non-recurring charges were found to be far in excess of available funds and the scheme had to be reluctantly laid aside. The request for a note on the proportion of urinals to the numbers likely to use them cannot be certainly answered. My impression is that there is one for every ten or so in the best cases, with about one for fifteen or thereabouts in the worst cases. But close examination might reveal different figures.

6. *Physical exercises.*—In all boys' schools games are well organized, and I am of opinion that sufficient attention is paid to physical exercise in this way. In every school attended by boys, including comparatively small schools, e.g. St. George's Middle school, Agra, attended also by girls, all boys above the limit of age laid down, who are not incapacitated by some physical defect, are required to join a cadet corps, and as a matter of fact all such cadets, excepting only a very small minority, qualify as extra-efficients. Relatively few very small boys are to be found in boarding schools, whether in the hills or in the plains, and where they are found, arrangements are made to give them regular exercises of the usual nature. In girls' schools also, games are played to some extent—basket ball, lacrosse and the like,—but in general perhaps this is not so. In all girls' schools, however, considerable attention is paid to physical exercises. A period or periods are set apart every day in the school time-table. Excellent results are usually obtained. Schools are left to select their own system,

and in most cases a satisfactory system is selected, but in very few cases, so far as I am aware, is the system selected followed in its entirety, modifications being introduced to fit the circumstances of the school. In almost all girls' schools in the plains, little boys attend the junior classes and these for the most part take the physical exercises of the girls of the same standing. The time devoted daily to these exercises varies from half to three-quarters of an hour, the latter being taken in two short periods, separated by a considerable interval.

7. As to playgrounds, most plains schools have ample grounds for games. I can recall only one school of any size in the plains where the playground leaves something to be desired. It is situated in the heart of Lucknow, and, although efforts have been made for some time to secure a suitable piece of ground at a convenient distance from the school, I am not aware that they have so far been successful. The existing ground used by this school is small and generally rather unsuitable. In one or two other cases of schools in the plains, chiefly railway schools attended by a relatively small number of children, playgrounds are either wanting or practically wanting. But as in almost all such cases the children are quite small, the need for a playground for regular games of the ordinary sort is probably comparatively little felt. In hill schools, playgrounds present greater difficulties, but in all boys' schools I am of opinion that existing playgrounds are on the whole sufficient. In girls' schools in the hills, on the other hand, playgrounds are sometimes inadequate for organized games of the usual sort, but the disability is sought to be made good in other ways; greater attention is paid to physical exercises, expeditions or excursions are organized for collecting wild flowers or for nature study and the like, with the result that mind and body are alike invigorated. Dancing also is largely resorted to. To make the unpleasantnesses of the rains less depressing in hill schools, it is not uncommon to find covered playsheds made use of, and in a certain number of cases where expense has not stood in the way, schools have regular gymnasia fairly well or quite well equipped with apparatus.

8. As to direct teaching of hygiene, probably little is done in boys' schools beyond occasional little talks of an informal character, for the most part, perhaps, out of school hours. In girls' schools, on the other hand, where domestic economy is a compulsory subject, and where also a considerable proportion of the girls study the elements of physiology (the text-books in use in the higher classes are Foster and Shore's *Physiology for Beginners* and Mrs. Barnett's *Making of the Body*), opportunity is found for a considerable amount of direct and indirect teaching of hygiene. In some girls' schools also, in addition to the above, courses of training in sick nursing and the care of children are given. But such courses are entirely optional, and as they involve a certain amount of expense, cannot be undertaken except in specially favourable circumstances. As a matter of fact, hygiene is not at present a subject which can be offered by itself in the European schools examinations. Nor is it likely to become a subject to be so studied in the future. A movement is on foot at the present moment to replace the existing courses of the European high school examination by the Cambridge senior local examinations, and there seems every probability that this will be done, and at no very distant date. Whether or not hygiene is one of the subjects that may be offered by candidates in that examination, I am unfortunately unable at this moment to say, as the one copy of the regulations for the Cambridge local examinations available in my office has been sent to an examiner. On its return, however, I shall be able to report definitely on this point. Even so it would be only one of many optional subjects open to candidates, and as they have quite a free choice in the matter, one could not safely predict whether it would be taken generally or not.

9. As to personal hygiene, I should say that the standard is, generally, comparatively high. In every boarding school the matron (in girls' schools) or the sergeant (in boys' schools) sees that the most is made of existing facilities, and of course the head of the school or some one deputed for the purpose also supervises this matter. Daily baths for all pupils are however out of the question, but I think in most cases a complete bath once a week is secured. This minimum is, I know, exceeded in all the better schools. Related to this is of course the question of water-supply. In large stations, boarding schools have comparatively little difficulty in obtaining as much water as they want. I believe all the schools in Naini Tal have a connection with the water mains, but I am not sure that this is so in the case of every European school in Mussooree. I know it was not so in the case of the schools at Barlowganj,

Mussooree, till quite recently, but the connection may have now been established. Perhaps the availability of the supply may not however have been in every case the greatest difficulty. The cost may have an even greater effect in inducing economy in drawing on the supply available. Even so I think the best is made of existing facilities, for under stress of competition no school failing in this matter could hope to secure pupils.

10. Moral teaching may be included in remarks on hygiene, and as to this I am sure all Protestant schools do good work. I am not so fully conversant with what is done in this matter by Catholic schools, and that is my sole reason for putting the matter as above; for although I do not fully know what is being done in this respect by Catholic schools, I am sure that they do their duty heartily by their pupils. The heads and the staffs of all schools, Catholic and Protestant alike, form a band than whom I know of none more devoted to the best interests of those entrusted to their care. I am not exaggerating when I say that it is a real stimulus to me to see their devotion, zeal, ability and energy. Taken all round, I know of no finer, more unselfish, more self-devoted a body of men and women, whose influence generally over their pupils is of the best.

11. As to ambulance classes, I do not know that much is done. I do not at this moment recall any but one case, where such classes may have been maintained in a European school in these provinces. This was the Boys' High School, Allahabad, where, so far as I am aware, the work was carried on in connection with the St. John's Ambulance Association. This was however several years ago, and I am rather hazy as to details. If desired, enquiries could be made.

NAINI TAL:
The 14th July 1913.

J. MURRAY, M.A.,
Inspector of European Schools, United Provinces.

APPENDIX E.

FACTORY SCHOOL—MESSRS. COOPER, ALLEN & CO., CAWNPORE.

THE school was started in 1908 to meet the inconvenience caused by the Indian Factory Act, which limited the hours of labour of children. At present boys may not be employed at all under nine years of age, and between that age and fourteen years for only seven hours a day.

Men at the factory work from nine to ten hours daily, according to the season or emergencies of work. It was felt better to give the boys a couple of hours in a school daily than turn them adrift after seven hours' work. They can thus now come from and return to their houses with their parents.

When the school was started on the 21st April 1908, about fifty boys attended, who were taught the alphabet by cards; the kindergarten system was used for object lessons, and the ball frame for simple rules in arithmetic and multiplication tables. Since then the average attendance has been as follows:—

1909	...	...	... 91
1910	...	...	... 230
1911	...	...	... 332
1912	...	...	... 245
Five months, 1913	...		... 202

The number this year is not so good as former years, but this is owing to a large number of boys having been passed into departments as full-timers.

Classes.—There are two classes—the senior class and the junior. There are rather more in the junior than the senior.

The boys attend school in three batches, and each batch is taught for about two hours.

Caste average.—The caste average in each of these batches, is as follows:—

First batch ...	... { Hindus, low class, 20 per cent. Muhammadans, 9 per cent.	i.e. 80 per cent. low class Hindus and 20 per cent. Muhammadans.
Second batch ...	... { Hindus, low class, 45 per cent. Muhammadans, 2 per cent.	
Third batch ...	... { Hindus, low class, 15 per cent. Muhammadans, 9 per cent.	

Books taught.—In each class Urdu and Hindi are taught—the Muhammadan boys the Persian character and the Hindu boys the Nagri character. The books taught in the school are those which have been approved by the Government, namely—

Hindi primer,

Urdu ka Naya Qaida,

Indian press readers in the Nagri and Persian characters—

Book I, parts I and II,

„ II, „ „

Primary general reader in Nagri and Persian characters, and

Cooper, Allen's text-books on tanning and currying in Nagri and Persian characters.

Arithmetic.—The first four simple rules in arithmetic and multiplication tables are taught, also English numerals. Object lessons from the kindergarten system are taught to new boys, and the ball frame is used to show them how to multiply, add and subtract.

Text-books on tanning and currying.—About thirty-five of the more advanced boys at present are learning the text-book on tanning, and seventeen boys are learning both tanning and currying. The head master was taught by one of the company's staff to enable him to satisfactorily impart the knowledge contain in these text-books. The boys thus taught acquire a theoretical knowledge more or less of the trade, the names and trade term used, and at an earlier age are thus able to understand what their father and relatives talk about regarding their work.

The boys attend school from the age of nine and leave when they are fourteen years old, when they become full-timers. It is unfortunate that some of them cannot continue their studies after this age, because they probably came to school at twelve or thirteen years of age and by the time they become full-timers, are only able to read and write a little. Nevertheless this little education has enabled boys to do their work far more intelligently than they would

K 64
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otherwise have done, and there is no doubt that the half-timers, especially those who have been at the school four or five years now, are much smarter than they were before the school was started. Those who have had the education and become full-timers take a more intelligent interest in the work and can more quickly be pushed on.

Popularity of school.—That the school is popular both with parents and boys is evident from the fact of our having continually to refuse to take in small boys who appear to be under nine years of age and who are sent by their parents chiefly to receive education. Then, again, the inducement of being paid for work done and receiving free education makes boys anxious to work in the factory. The majority of the boys have their fathers or a near relative working in the factory.

Masters.—There are two masters, who draw respectively Rs. 42-8-0 plus Rs. 10 house rent allowance and Rs. 20 per mensem. We receive a grant-in-aid from Government of Rs. 27-8-0 per mensem.

COOPER, ALLEN & Co., Ld.

15/1 — 2 Offs

65

G.R.S. 26]

SUBJECT..... For this Corresp^ce re- School & College hygiene.....

Diary No. of letter replied to.....

General and Revenue Secretariat

( )

, *the* 191 .

Section E Edn

File No. 20-15

Serial No. 16.

No. 3378/ Edn I.

Date of issue 18-1-16

Signed by Jai K. Sabha Secy

To The Secy. ~~to the Govt.~~ ~~Govt. of the Ex. conf^ce.~~ Ex. Conf^ce.

Sir,

In continuation of G.O. no. 2872-5/ Edn. 44-14-38 dt. 21.12.15 recording certain corresp^ce regarding School & College hygiene, ~~it~~ I am directed to forward herewith ~~a copy~~ copies of the marginally noted letters ~~from and to the Govt. of India~~ about School &

over.

X Please type the margin of the P. H. D.

Chk
17/1

66
C

College hygiene in the Punjab
and Bihar & Orissa, The and request that they
~~have~~ after perusal may be forwarded to
the Secy. to the Edn. Commissr
for information.

I have etc

H
H Secy. Ex A
H Mysl.
12.1.16

List of enclosures.

Copied by

Examined by

GPB—20,000—14-2-14

3al

2. Offs

67

15/1

G.R.S. 26]

SUBJECT Further Corresp^ce re-
School & College hygiene

Diary No. of letter replied to

Section Edn
File No. 20-15
Serial No. 17.

General and Revenue Secretariat

( )

, the 191 .

No. 3377/Edn I.

Date of issue 18-1-16

To The D.P. of Edn.

Signed by Rai K. Sahai Asst.

Sir,

In continuation of G. O. no. 2872-5/Edn. 44-14-38 & 21.12.15- regarding certain corresp^ce. regarding School & College hygiene, I am directed to forward herewith ~~for~~ a copy of the marginally noted letters ~~from and to the Govt. of India~~ regarding

over.

* Please type the marginal of the P.R.D.

17/1

about School & College hygiene
in the Punjab and Bihar and
Orissa. (~~The same~~ and I request that they
, may also permanently
be kindly sent ~~for~~ to the
Senior Surgeon for information
and return ~~and afterwards filed~~
recorded in your office.

I have etc

~~Sd~~ Secy. ~~Ex Sd~~ 13/1
~~Sd~~
12.1.16

List of enclosures.

Copied by

Examined by

GPB—20,000—14-2-14